Chemical Week

April 12, 1952

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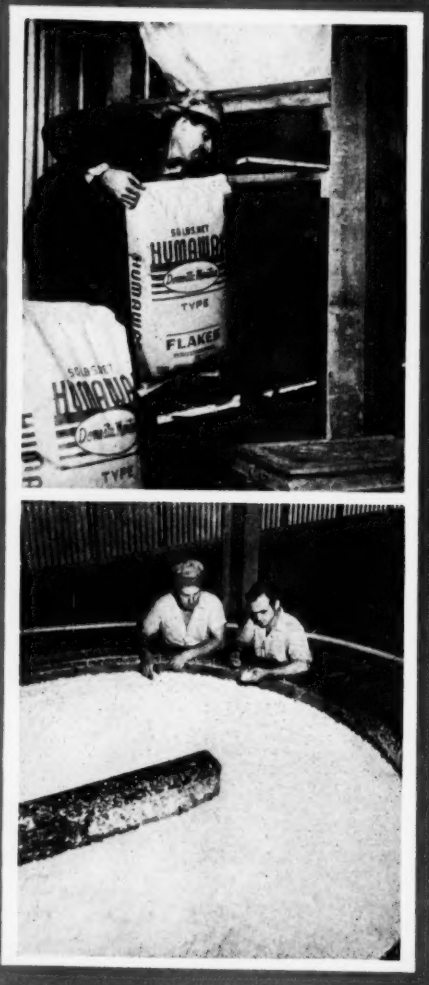

Fat roster of plants a-building tags Montreal as upcoming chemical center . . . . . p. 11

New cortisone research excites biochemists; goal: to skirt costly multi-step synthesis . . . . . p. 25

Montan wax: U. S. bids for "self sufficiency" as second California plant comes in . . . . . p. 32

Pulpmaking trends hit chemical markets; more byproducts, pulp; shift in chemicals used . . p. 51

Now it's polyethylene carboys: you can bash 'em, bounce 'em but they won't break . . . . p. 57

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Chemical Week

Volume 70 Number 15

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**"Cellosolve" trade mark Union Carbide & Carbon Co.*
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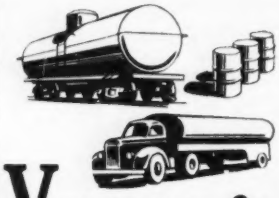

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OPINION . . . . .

Split or Dividend?

To THE EDITOR: . . . In your Newsletter (Mar. 3) you say that American Cyanamid may (1) split its stock two for one and (2) or possibly declare a stock dividend of one share for each share.

What's the difference?

F. A. RIDEOUT
Bakelite Co.
Boston, Mass.

None to the stockholder, Reader Rideout. They do, however, involve different bookkeeping procedures.—ED.

Watch Mixed Chromates

To THE EDITOR: . . . In my article on Fungicides (Jan. 26) I was no doubt guilty of many sins of omission and Mr. Hartford (Apr. 5) has properly called attention to one of them. . . . I am certainly aware of the chromates and agree . . . that they are important fungicides.

However, when we were discussing the preparation of this particular article, you set some limits on the scope of the subject material, said that we should not go too deeply into the field of wood preservatives or agricultural chemicals. . . . Chromates, as Mr. Hartford points out, are used almost exclusively in these fields. If I had discussed wood preservation I should certainly have mentioned also the arsenates and borates and, of course, creosote, which is the preservative used in the greatest quantity. . . .

In my own work, I found copper chromate to hold up as well as an equal percentage of copper naphthenate in outdoor exposure tests of fungicidally treated cotton duck. . . . Perhaps the most interesting development in fungicidal chromate chemicals are the mixed chromates that have been worked on at Boyce Thompson for Carbide and Carbon. . . .

Some of these appear on the market as agricultural fungicides under the "Crag" name. . . .

S. S. BLOCK
Associate Professor
University of Florida
Gainesville, Fla.

Sought: "Character"

To THE EDITOR: May I contribute my two cents worth to the discussion of cigarette quality. . . .

Admittedly, we have been somewhat distressed by the cynical attitude, particularly of chemists, referred to in your article "Firm, Round, Packed," (Mar. 1,) toward any statement of fact which appears in the advertising of cigarettes. If we tell some of our friends that Luckies are better made or contain less nicotine, they seem to accept it. But the minute the same statement appears in a commercial, it evokes disbelief. Foster Dee Snell brought this point out very clearly in his letter which you graciously published (Mar. 8). . . .

For years we were either oblivious or indifferent to this attitude. We were plugging along here, making a lot of interesting observations and discoveries about tobacco and improving our products. Since our Advertising Department has elected to use the results of some of our efforts. . . . I must confess to a little sensitiveness toward this "rugged skepticism."

Wholly aside from any dubious competitive advantage which it might give us, I would like our profession to accept the manufacture of tobacco products as a suitable and respectable field for research. Granted, we have lagged as an industry, but all members seem to be waking up to both the needs and the opportunity for scientific study. . . .

We are just human enough to want our organization to get some credit for having anticipated this awakening. I could say—with what I hope may be construed as pardonable pride—that, for years, we have set the standards for the selection of tobacco and for the quality of the finished product. At least trends in competition so indicate.

A few years ago we began casting about for means of bringing to the attention of professional and technical people some of the interesting facts about tobacco and also about our research activities. We placed ads in scientific journals . . . presented exhibits before numerous scientific gatherings. Both were strictly scientific . . . free from all sales promotion.

We were not under the illusion that these efforts would sell our products, but we did feel that, in time, they might give us a little "character" with members of our profession, many of whom seem to have adopted a "tongue in cheek" attitude toward any and all serious statements about cigarettes.

The raw material and processing methods involved in the manufacture of tobacco products are complex. The scientific and technological problems of the industry are real, and we think worthy of our best efforts. Why then is the word "quality" so incongruous when applied to cigarettes that it provokes widespread expressions of incredulity? Is it unthinkable that one cigarette manufacturer, through su-

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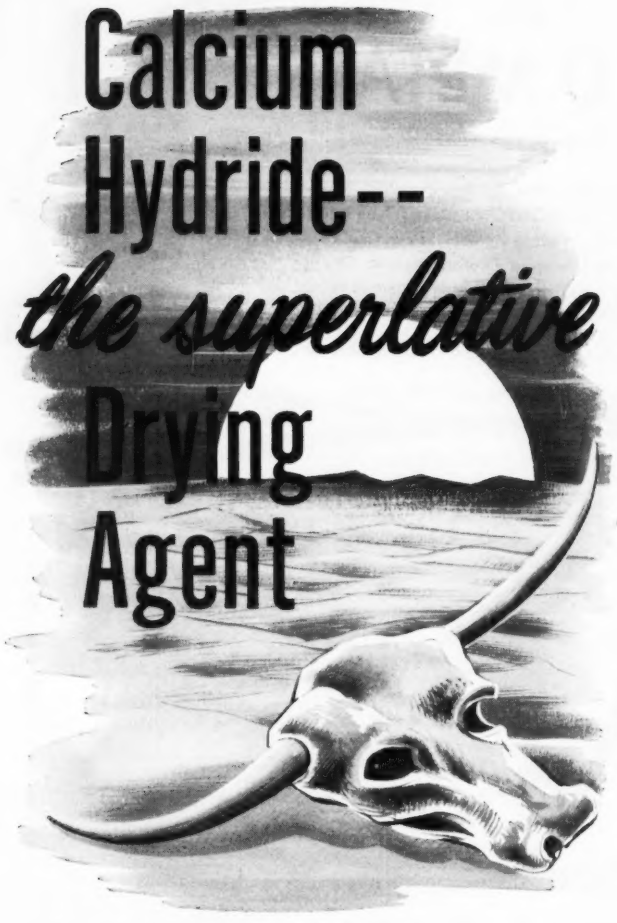

In particle sizes to suit the specific drying process — lumps, grains or powder, C.P. or commercial grade, Calcium Hydride proves to be the incomparable drying agent for gases.

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MH Bulletin 210, dealing with drying problems and processes, is informative, and will be sent for the asking.

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OPINION . . . . . .

perior knowledge and workmanship, can turn out a product which is more expertly blended, more skilfully made, more uniform chemically and physically, and more consistently pleasing to the average consumer, than another?

From purely selfish motives and without any thought of being contentious, may we ask that our colleagues try to ascertain the facts before they pass judgment. After all, who is better qualified than the chemist to separate the wheat from the chaff?

HIRAM R. HANMER
Director of Research
The American Tobacco Company
Richmond, Va.

Thank you, Reader Hanmer, for a thought-provoking outline of the woes of tobacco chemists. This we suspect is the nub of the problem: There's an old selling wheeze which says in essence that "it's the sizzle that sells the steak." Spurred by keen competition, cigarette ad copywriters have been sizzling along for many a year, burning up superlatives, leaping from minor facts to significant conclusions. En route they have engendered the "brutal disbelief and rugged skepticism" of the public which we reported and have fostered the development of the unfortunate situation mentioned.—ED.

Union Shop by Fiat

TO THE EDITOR: More power to you for your excellent editorial (Apr. 2) on the menacing development of the union shop by government fiat. In the briefest possible span, you have presented the relevant considerations in sharp focus.

Vicious as it is, compulsory union shop is but one element of the price we pay for government invasion of labor-management relations. This is a field in which the government has no place, but which can be misused to bring government pressure into all other phases of employer-employee relations as it has with respect to the union shop. This is an intolerable situation in a free country.

EARL BUNTING
Managing Director
National Association of Manufacturers
New York, N. Y.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: The Editor, Chemical Week, 330 W. 42nd St., New York 18, N. Y.

PROGRESS REPORT #1

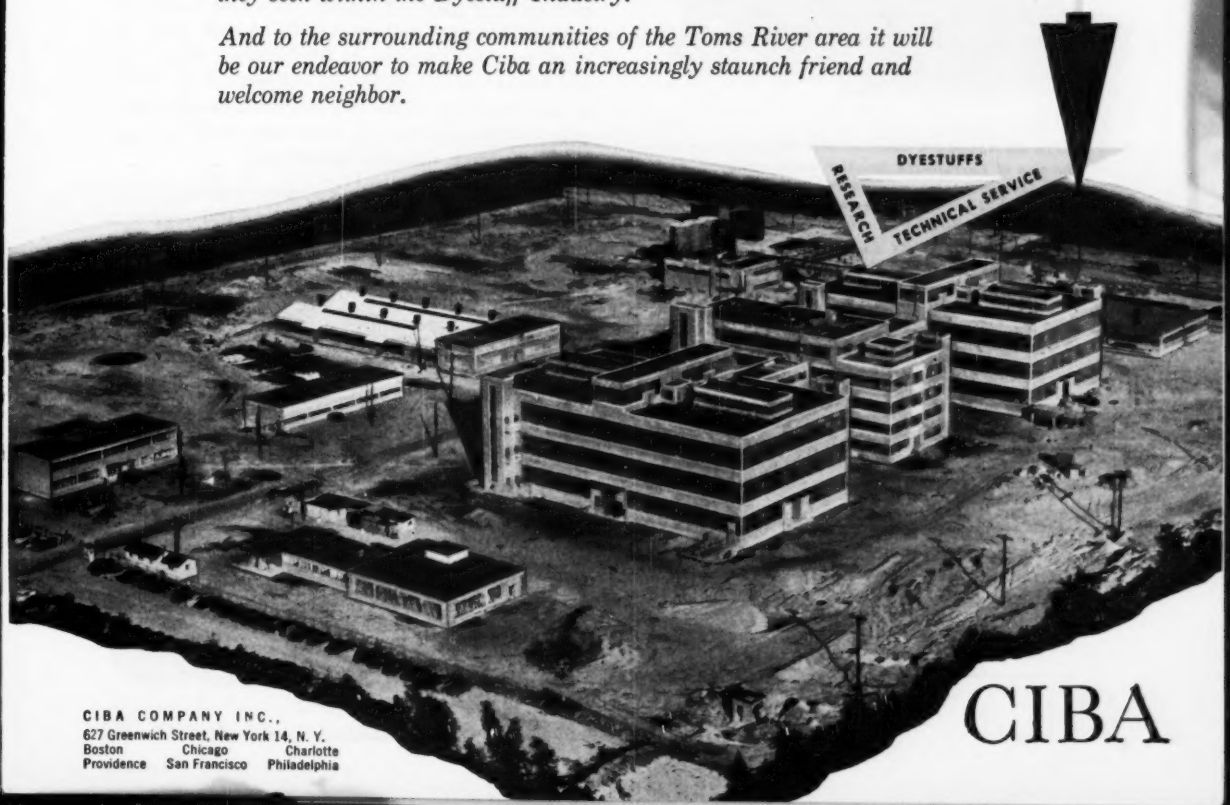
The "Toms River Story"

In the heart of the New Jersey midlands, on what had been 1200 unbroken acres of virgin pine forest until the Spring of 1949 when clearing crews moved in with axe, saw and bulldozer, a new and vast adjunct to the nation's chemical industry is rapidly taking shape . . . the most modern plant for production and technical service of vat dyestuffs in the world.

The Toms River Project is entirely Ciba conceived, designed, engineered and owned. It is being constructed, equipped and staffed by Ciba. Upon completion within the year it will be operated exclusively by Ciba.

These are the facts, but not the whole story. For beyond the tons of blueprints . . . the millions of man hours, in skill and labor . . . and the ingenious enterprise that will bring the new Ciba plant into being close on schedule . . . Ciba's management sincerely hopes that users of dyestuffs . . . and their customers in turn . . . will find in these vast new resources for vat dyes products and technical counsel a major extension of the services they seek within the Dyestuff Industry.

And to the surrounding communities of the Toms River area it will be our endeavor to make Ciba an increasingly staunch friend and welcome neighbor.



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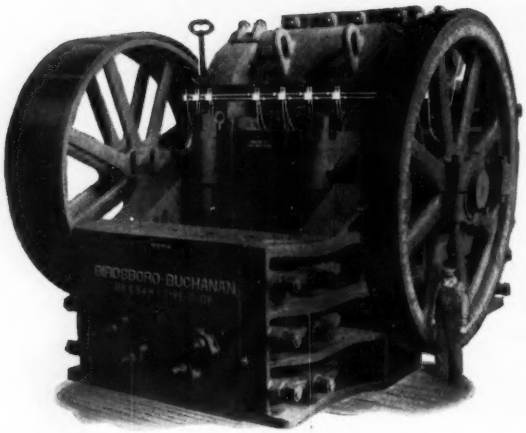
FARVAL—*Studies in Centralized Lubrication* No. 133



KEYS TO ADEQUATE LUBRICATION—*Wherever you see the sign of Farval—the familiar valve manifolds and dual lubricant lines—you know equipment is properly lubricated. Thus you can see there will be no bearing trouble on this Birdsboro-Buchanan crusher.*

This giant weighs 275 tons, stands 18 feet high, has a 66- x 84-inch jaw opening. It handles feed from a 5-cu.-yd. shovel, discharging a 14-inch product at the rate of 800 t.p.h. It is one of more than fifty thousand industrial machines whose bearings are protected by Farval.

Photo above by courtesy Birdsboro Steel Foundry & Machine Co.

IN the next few months, this mammoth machine will crush three million tons of diorite. Largest deep frame jaw crusher ever built, it is operating on the Detroit dam project in western Oregon.

A highly publicized feature of this project is the cooling of all the aggregates used in the concrete construction. The builder of this crusher insured that the bearings in his equipment would always run cool, too. He equipped it with a Farval Centralized Lubrication System.

With Farval on the job, no special oilers are needed, lubricant consumption is reduced, bearing life is extended indefinitely and shutdowns for oiling or bearing replacement are eliminated. In short, Farval insures that the crusher can work day in, day out, without interruption from overheated bearings, in doing its part to see that the great Detroit dam is finished according to schedule.

Farval is the original Dualine system of centralized lubrication for industrial equipment, proved practical in 25 years of service. The Farval valve has only two moving parts—is simple, sure and foolproof, without springs, ball-checks or pinhole ports to cause trouble. Through its full hydraulic operation, the Farval system unfailingly delivers oil or grease to each bearing—as much as you want, exactly measured—as often as desired. Indicators at all bearings show that each valve has functioned.

In or near your city there's a Farval engineer, ready to discuss your lubrication problems and suggest a proper system to meet your particular needs.

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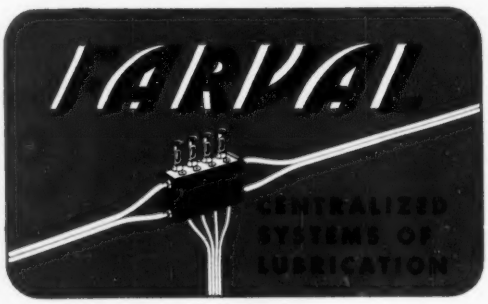


NEWSLETTER

You can look for more government contracts to go to firms in labor-surplus areas. That's the upshot of new regulations issued by the Munitions Board and the Armed Services Procurement Regulation Conference.

This way spot unemployment can be relieved by perfectly legal means. The low bid can be turned down, and the procurement officer can dicker with the lowest bidder in a distressed area for a negotiated contract. To aid in bargaining, he can reveal the amount of the low bid.

There's also a gimmick to accomplish the same objective with advertised bids. Also, procurement officials are required to see to it that qualified bidders in labor-surplus areas get invitations to bid.

Makers of chemical specialties and pharmaceuticals aren't saying so, but they've given up hope for restoration of fair trade during the current session of Congress.

Sparkplug of the drive is the National Association of Retail Druggists' John W. Dargavel, who skillfully maneuvered a bill into a friendly committee (Interstate and Foreign Commerce) rather than into Anti-Fair Trade Celler's Judiciary Committee, the logical choice.

But N.A.R.D. couldn't pressure Speaker Rayburn into giving the McGuire bill a top spot on the calendar; and consequently the flood of telegrams and letters unleashed by N.A.R.D. will lose their impact.

The House will be too busy after the Easter recess; the Senate will be in no hurry (only a third of the members are politicking); and even if a bill does get through, Truman will undoubtedly veto it.

Latest flare-up in the chlorophyll marketing battle (CW, Mar. 29): Colgate-Palmolive-Peet and Amm-i-dent, Inc. have brought suit against Rystan Co., demanding a declaratory judgment on the validity of Rystan's patent in New York State. (The Federal District Court in Dallas upheld the patent March 1.)

Rystan will almost certainly file countersuits charging patent infringement.

Little signs here and there all point to some sort of exclusive arrangement between Rystan and Lever Bros. (whose Pepsodent Co. has the sole dentifrice license). It appears that this agreement checks Rystan from granting further toothpaste licenses until a July 1 deadline—presumably the date when the exclusive arrangement terminates.

More news about specialties: An Automotive Chemicals Division has just been formed within the Chemical Specialties Manufacturers Assn.

It's part of CSMA's drive to expand membership, offer specific trade services to specialty makers.

Upjohn Co. means business with its microbiological oxidation (fermentation) process for simplifying the hitherto complicated cortisone synthesis (CW Newsletter, April 5).

The company plans a $3.3 million cortisone plant at Kalamazoo, Mich., is awaiting DPA approval of a certificate.

The new process permits synthesis of cortisone from progesterone, which is relatively more available than the now-used desoxycholic acid.

If you've been afraid to hire aliens because you have defense contracts—forget it. The Munitions Board, in clarifying its security policy, points out that defense work is no bar to employment of aliens.

Only where an employee is working on aeronautical contracts or has access to "classified security information" is clearance required. And aliens and citizens alike must be cleared for classified projects.

A small textile processing firm, Perma-Dry Co., Inc., New York, got an assist last week from the Government in the form of a 5-year, 5% RFC loan of $35,000. The firm flame-, water-, mildew-, and mothproofs textiles. About $25,000 will go for new equipment, the remainder for moving to larger quarters.

RFC took the loan when banks turned the application down because it was for too long a period. RFC has a lien on the equipment.

Insecticide makers have had an unexpected and certainly unintended—assist from Uncle Sam.

Government-sponsored irrigation has turned some 22 million acres of arid land into a vast mosquito breeding ground as well as productive farmland. It is now a major control problem in the West.

U. S. Public Health Service has set up a control project headed up by twelve entomologists and biologists and eight engineers.

Speaking of insecticides, here are DPA's targets for January 1955 capacity (compared with Jan. 1, 1951, capacity):

Benzene hexachloride: 23.7 million lbs.—up 6.3 million.

Lindane: 5.1 million lbs.—about 850,000 lbs. more than is covered by certificates of necessity already granted.

DDT: 155 million lbs.—up 53 million lbs. over 1951.

Expansion goals for two pigments were also revealed by DPA:

Synthetic yellow iron oxide: 25,000 short tons—up 12,000 tons.

Titanium dioxide: 370,000 short tons—up 88,000 tons.

Clamor for decontrol is quieting, largely because gradual progress in this direction is already being made.

In his swan-song quarterly report Defense Mobilizer Wilson, an "industry" man himself, says indiscriminate decontrol would be dangerous; and OPS has stepped up enforcement to demonstrate the need for controls to keep prices in line.

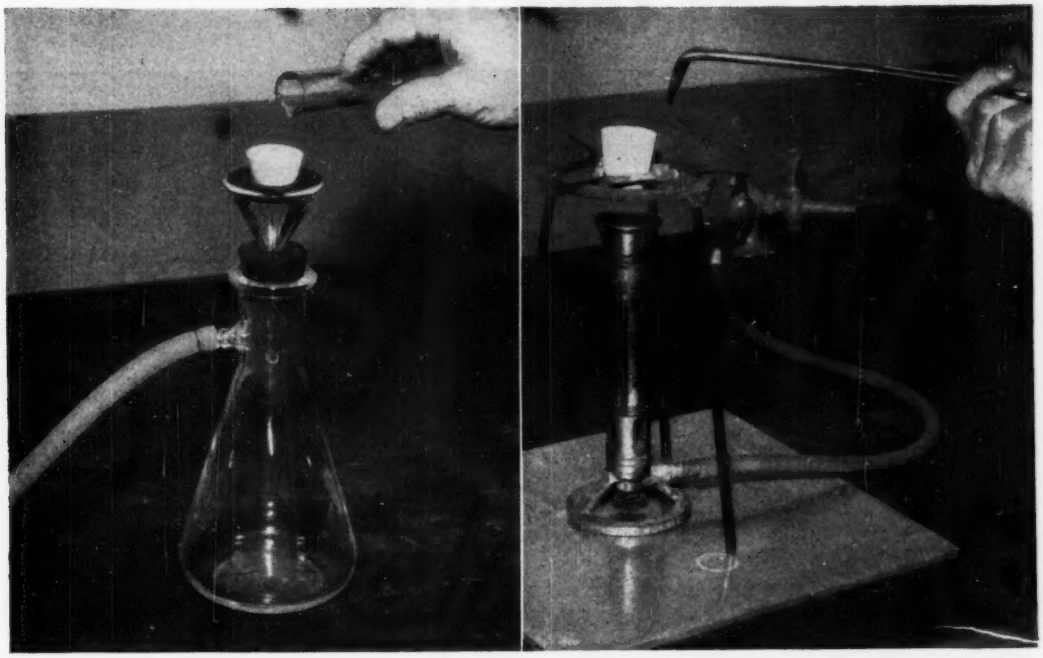
But NPA last week removed all chemicals from specific 30-, 45- or 60-day inventory controls, and under an amended Regulation No. 1 called merely for "minimum practicable working inventories"—which essentially means business as usual as far as inventories are concerned.

There'll be cellophane made on the West Coast if the Seattle Chamber of Commerce has its way.

It's progressed beyond the wishful-thinking stage; One cellophane producer has met with the Chamber, plans to survey market potentials—particularly among the Coast food packagers.

Don't expect to sell fluorides or fluoridating equipment to New York State water officials. Gov. Dewey vetoed a bill authorizing fluoridation because it didn't provide proper safeguards.

. . . The Editors



SERVING A DOUBLE PURPOSE. Filter crucibles of Norton ALUNDUM are unique in that precipitates may be both collected and ignited in them, without transfer to another receptacle. Photographs show how the same device is used for each of these two functions.

You save time and work with Alundum* laboratory ware

Made of purest fused alumina, expertly bonded and fired, Norton ALUNDUM laboratory ware offers technicians an exceptionally useful combination of properties. For example:

CHEMICAL STABILITY—ALUNDUM ware is unattacked by any organic solvent, being affected only by hydrofluoric acid, concentrated phosphoric acid and strong, hot caustic solutions.

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AMPLE POROSITY — Between 35% and 50%, in most cases, with practically no closed pores.

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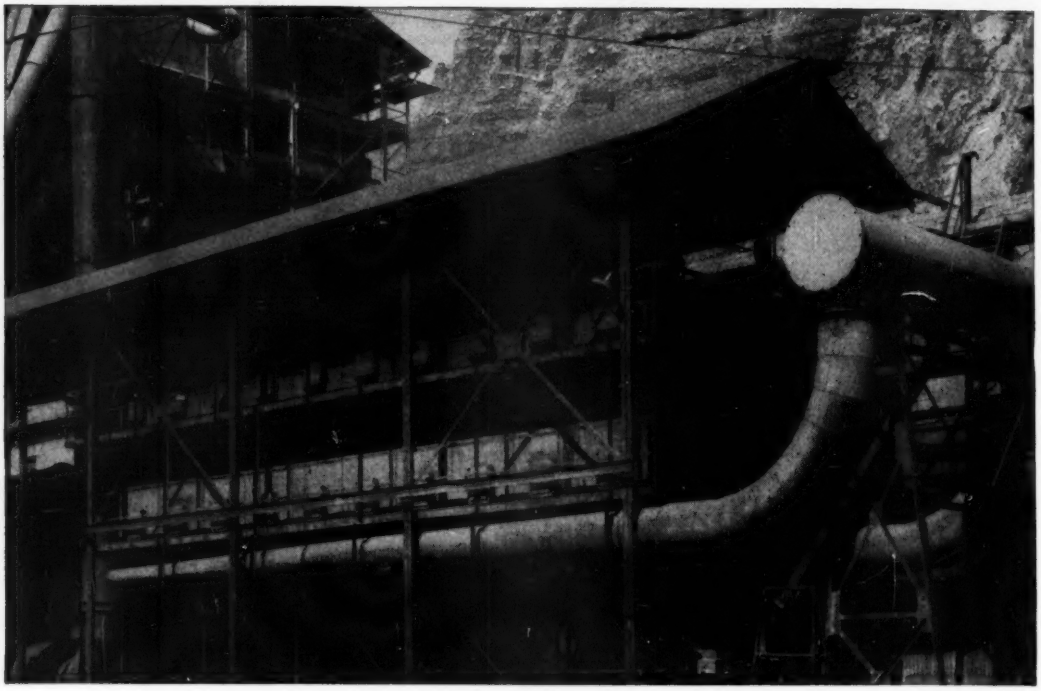

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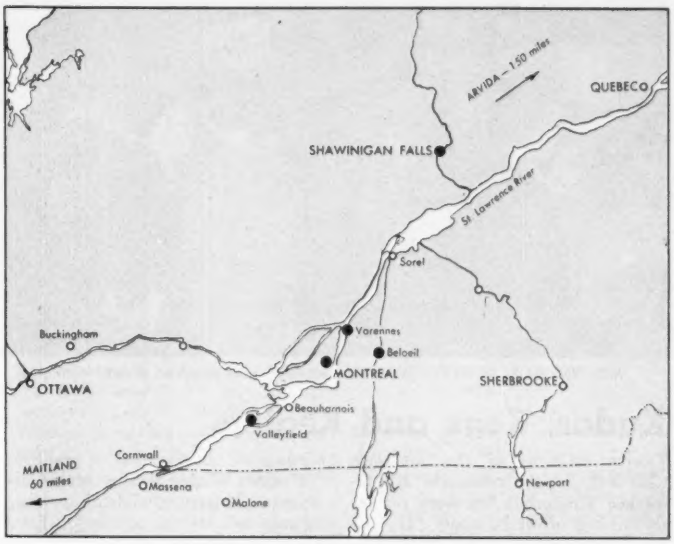

MONTREAL: Business capital to production center.

New Role for Montreal

Long the nerve center of Canada's chemical business, Montreal pushes to production fore as hub of burgeoning (over $70 million) industrial area.

"First for Canada" in the region's plants scheduled for completion this next year include phenol, pentaerythritol, isopropanol, adipic acid, hexamethylenediamine, some types of vinyl resins.

When talking about cosmopolitan (and bilingual) Montreal's place in the Canadian chemical industry, you're on fairly safe ground in comparing it with New York City. Like New York, which has been the corporate office center of most U.S. chemical concerns, Montreal is the city top brass of most Canadian firms direct operations from.

Towering on historic Beaver Hall Hill is the 17-story CIL House of Canadian Industries Ltd. (whose 1,400 head office employees have overflowed into the recently-acquired Confederation Building at McGill College).

Across the road on the corner of Beaver Hall Hill and Dorchester St. W. is the Shawinigan Building; Vic Bartram, president of the "dependencies," as Shawinigan Water and Power subsidiaries and affiliates–Shawinigan Chemicals, Canadian Resins and Chemicals, St. Maurice Chemicals, B.A.-Shawinigan – are known, holds forth on the fourth floor.

Two blocks away, the Sun Life Building overlooks Dominion Square's trees and park benches. In this 23-story grey-stone skyscraper are the headquarters of Dominion Tar and Chemical, Aluminum Co. of Canada, and Nichols Chemical.

Quebec Iron and Titanium Corp. has its executive offices in the Bronfman Building.

On Two Scores: Clearly, Montreal is the nerve center of Canadian chemicals. But if Montreal-headquartered executives pondering plans for expansions, and wrestling with problems of construction, stopped to think about it this week, they'd agree that a healthy share of Canada's abuilding and about-to-be-building projects is ticketed for an area of several hundred miles radius with Montreal as its hub.

For British Columbia's woodpulp developments, Edmonton's petrochemical and fiber projects, and Sarnia's continued growth as a chemical center–which perhaps have been attracting most attention–are not all there is to Canada's present chemical growing streak. Expansions under way or scheduled for the Montreal section total at least $70 million, mean that Canada will be producing its own isopropanol, phenol, pentaerythritol, adipic acid, hexamethylenediamine, and some types of vinyls for the first time. And there are healthy boosts due for other organics as well as inorganic chemicals.

Many Offspring: Investment of the various Shawinigan Chemical enterprises in new capacity adds up to some $19 million. B.A.-Shawinigan Ltd. (Shawinigan-British American Oils* joint company) has begun building a $4 million phenol and acetone plant in Montreal East that should be in production in 1953, possibly early in the year. At nearby Varennes, St. Maurice Chemicals (Shawinigan-Heyden Chemical) has just started construction of $3 million formaldehyde and pentaerythritol plant.

Also at Varennes, Shawinigan Chemicals plans to get under way a $7 million calcium carbide plant, this too with a 1953 "on stream" goal. The same company's acetylene and vinyl acetate plants at Shawinigan Falls, each a $1 million-plus job, will be completed this year.

The Shawinigan-Union Carbide firm, Canadian Resins and Chemicals, is putting up a new $2.5 million vinyl resins plant at Shawinigan Falls; it's due in early next year. At the same location, a new $1 million calendar line is nearing completion.

Self-Sufficiency: The largest single project of Canadian Industries Ltd. (jointly controlled by Imperial Chemicals and Du Pont), the Maitland, Ont. nylon intermediates plant under construction some 150 miles up the St. Lawrence River from Montreal, is aimed at making Canada self-sufficient in adipic acid and hexamethylenediamine. To be finished next summer, it will supply the Kingston nylon spinning plant.

* Actually a misnomer. B.A. is Canadian-owned.

None of CIL's other Montreal-orbit projects is staggering, but they all swell output. At Beloeil, a new explosives building has been added, magazine capacity increased, and the ammonium nitrate process revamped. At Shawinigan Falls: 1) a sixth casting machine has been added in the cellophane plant; 2) chlorine, caustic capacity has been upped 15% by installation of new equipment; and 3) installation of new still and power-equipment in the peroxide plant will be finished by summer.

Shell Oil Co. of Canada's $3 million facilities to produce annually 13 million lbs. of isopropyl alcohol, now imported, and 7 million lbs. of acetone from refinery waste gases will go up in Montreal East. Contractor is now on the site, should have the plant completed by year's end.

Montreal East is also the location of Dominion Tar and Chemical's $10 million ethylene oxide, glycol plant. Grading was completed last fall; and pipelines into refinery, other initial work is 75% completed. Work on buildings is now commencing; the plant should be producing before '53.

Sulfuric Boost: Only tidying up remains to be done at Nichols Chemical's new $2.5 million sulfuric acid plant going into operation at Valleyfield, some 40 miles up the river from Montreal. And several hundred miles in the other direction, at Arvida, another sulfuric plant—Aluminum Co. of Canada's—should be producing next month. Cost was $1.5 million; production (from zinc concentrates) will be about 45,000 tons per year.

Another chemical staple—phosphorus—shares in the Montreal boom. Electric Reduction Co. of Canada has begun construction on two 18,000 kva furnaces at Varennes (*CW Newsletter, Sept. 8, '51*). This $4-5 million installation, set for 1953 completion, will supplement the company's capacity at Buckingham, where phosphate and sodium chlorate output is being increased.

The mighty $30 million ore smelting project of Quebec Iron and Titanium (joint subsidiary of New Jersey Zinc and Kennecott Copper) at Sorel is moving along at a good pace. One furnace (to reduce titanium ore from the Lac Tio ore body on Quebec's north shore to titanium slag and iron ore) is already in operation; four more will be installed during the next few years.

And by the time the last furnace is in, there will be no doubt of Montreal's dual role as the business headquarters and hefty production center of chemical Canada.

MILWAUKEE AUDITORIUM: The crash of pins provided punctuation.

Kudos, Kegs and Keglers

Twelve divisions of the American Chemical Society convened in Milwaukee Auditorium last week for the second half of the bifurcate 121st national meeting.

The incessant crash of bowling pins in the neighboring Milwaukee Arena provided punctuation for 2,917 chemists' conversations and papers as registrants at the American Chemical Society and American Bowling Congress meetings vied for scarce hotel rooms.*

As befitted the locale, the Agricultural and Food Chemistry Division devoted an all-day symposium to malting and brewing technology, set aside all of Wednesday for field trips.

Of wider professional interest were symposia on pesticide residues and bioengineering, and awards to various individuals.

Present Laws Protect: Speaking for the National Agricultural Chemicals Association, J. A. Noone devastated current arguments to the effect that laws now on the books do not adequately protect the public against dangerous pesticide residues on fruits and vegetables.

He pointed out that the government has failed to make full use of present laws, whereby the Federal Security Administrator has authority to establish legal tolerances, has failed to do so to any extent. Besides, the Food and Drug Administration can seize adulterated foods. California has established tolerances, but the history of seizures there shows that excessive residues are not a surpassing problem.

Shotgun Wedding: Spectacular advances in fermentation chemistry over the past decade—viz., antibiotics—have forced a union of biochemistry and engineering theory to procreate a new technology: bioengineering. Largely neglected by most colleges and universities, this field rated a symposium jointly sponsored by the Division of Agricultural and Food Chemistry and the Division of Industrial and Engineering Chemistry.

Few Employment Prospects: The quietest spot in the Auditorium was the Employment Clearing House. Only 161 registrants were job-hunting (a sixth as many as at some previous meetings), and employers—apparently dubious of their chances—were not there in force. Plenty of work to be done, but not enough men available to do it.

* Local taprooms, with high disdain for chemists' collective capacity, were plastered with "Welcome A.B.C." signs—no mention of A.C.S.

LABOR . . . . . .

Labor Whirl

Last week's back-to-work order to laborers at the Atomic Energy Commission's Paducah, Ky., plant, marked the end of the 37th work stoppage since work began in Jan. 1952. Typical of the confusion at the $500 million project was the failure of many laborers to get the order in time to report until a full day later.

Despite the myriad work stoppages, F. H. McGraw & Co., the prime engineer and contractor, maintains that the job will be completed on schedule.

According to AEC officials the first buildings may be a month or two late, but the final structure will be finished right on time.

Minor Matters: This latest walk-out of the laborers was reportedly over dissatisfaction about night shift work schedules, and followed the pattern of most of the other 36 in being minor and relatively short. Mostly it has been jurisdiction, grievances, and other small troubles between the many different construction unions involved in the job.

Troubles have tended to be enhanced by the presence of multiple unions within the same trade, and many unions considering others invaders of these rights. Coupled with the construction industry's chronic ailment of who-does-what-under-which union's-jurisdiction, this has not led to happy days at Paducah.

Main trouble spots seem to be the Laborers and the Sheet Metal Workers. Right now, with the Laborers back in the fold, the Sheet Metal Workers are acting restless again, and may go out any day.

Absentee Leaders: One of the main reasons for all the confusion appears to be that the unions' headquarters are far from the point of work. When troubles do arise, they start small but by the time all affected parties know what's what and have reached agreement, days have passed. Since a great deal of the trouble comes from things like interpretation of contract terms involving a few hundred workers or so, referrals here and referrals there make the distance factor an important one.

But the primary trouble at Paducah is simply that 15,000 diverse workers, represented by many unions, small, large and medium, in a temporary setup, and jealous as all get out of their rights, just won't work as smoothly, sensibly and harmoniously as workers in permanent plants and one homogeneous union.

•

WSB Shifts: After turning down a clause in the new contract between International Chemical Workers (AFL) and Ansco two months ago, the Wage Stabilization Board has now reversed itself and approved the clause. The provision is one calling for increases of 8-9 cents per hour for second-shift work, and 12-14 cents per hour for third-shift work.

The decision will affect some 750 employees at Ansco's Binghamton plant.

•

Sympathy? Last week nine officials of the United Rubber Workers' (CIO) local at B. F. Goodrich Co. were convicted of contempt of court, fined $250 each, locked up for 10 days.

The response: All 14,000 members of the local walked out, and were joined by 16,000 more from Goodyear Tire & Rubber Co. Said Goodyear's local 2 president, "The boys are pretty hot . . . I couldn't say this is a sympathy strike, but it perhaps has something to do with it."

•

Wildcat: A one-day strike at Carborundum's Niagara Falls plant last week, has union officials and company officers huddling to iron out the troubles that caused it. The 1,000 men walked out without an official strike call when the company refused to accept an arbitration decision.

This was the first such rejection in the knowledge of the local union president, and the company admitted it had found an arbitration decision quite unsatisfactory. Neither side would say just what it was.

•

Election Now: The International Chemical Workers (AFL) has now reached the point in its organizing drive at Hoosier Ordnance Plant, Charlestown, Ind., that it has petitioned NLRB for a bargaining election. The plant, part of the Indiana Arsenal, is operated by the Goodyear Engineering Corp.

Pliofilmed Smokes

Latest addition to Pliofilm's growing packaging line is cigarette outer-wrapping. Spurred initially by the cellophane shortage, Brown and Williamson is looking with growing interest at Goodyear's Pliofilm (chlorinated rubber). Reason: superior protection, excellent heat sealing qualities. Bugs like excessive tackiness, lower flexibility and packaging difficulties are now being killed.

Take 418,801,916,660 cigarettes—U.S. production last year, put twenty in a pack, wrap each of the 20,940,095,833 packs in cellophane, and you've got enough film to cover a county. That's the market Pliofilm is trying to get a piece of.

Field tests, now well under way in Kentucky, are determining customer reactions to Pliofilm-wrapped Kools. There, Brown and Williamson Tobacco Co. is marketing the Kools, both over the counter and through vending machines. Teamed with Goodyear Tire and Rubber Co. B & W is currently investigating all facets of this program.

Advantages: Pliofilm has excellent heat sealing properties. Also, of real benefit to the smoker is the fact that cigarettes protected by Pliofilm have a 10%-15% advantage in moisture retention. Naturally, the wrapper works equally well in preventing the absorption of outside flavors and odors.

Pliofilm's forging ahead in the packaging line is hardly surprising considering its success as a wrapping for aero engines in ocean transportation during World War II. Here, moisture protection was imperative. Other successful uses: wrapping for foods, cosmetics, etc. where flavor and odor retention is essential. Furthermore, the chlorinated rubbers are nonflammable.

CIGARETTES IN PLIOFILM: New threat to cellophane?

Although Pliofilm protects and heat-seals well, there are, however, several properties characteristic of the current material which will have to be modified before it gets an unqualified okay.

Improvement Needed: Because the rubber-based plastic film has no grain, in contrast to cellophane, pulling the small strip to open the Pliofilm package gives a less even tear; but since there have been no complaints, smokers apparently neither notice nor mind that fact.

Though Pliofilm tends to be slightly darker in color than cellophane, the

CW INDEX

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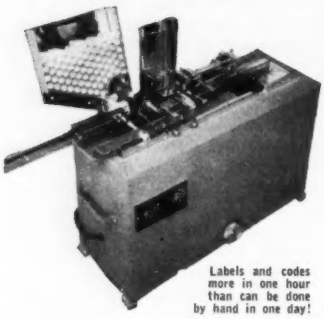

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difference is hardly detectable by an expert, even when used over the green-and-white Kool package.

Somewhat more troublesome features yet to be worked out of the plastic film, says Tim V. Hartnett, president of B & W, are its natural tackiness, lower flexibilty, more difficult packaging techniques and higher cost.

Main complaints are from users of vending machines, who claim that Pliofilm-wrapped packages tend to stick together and thus do not move through the machines properly. At least part of this trouble is caused by heat from the lights in the machines, which softens the plastic and increases tackiness.

Tax Troubles: Second complaint on use in vending machines arises from the necessity of making change, since the price per pack varies from state to state as a result of taxes. Vending machines must be set to give even change in nickels or dimes. Consequently, penny refunds must be placed under the outer wrapper.

Pennies are placed inside the outer wrapper in a space made by inserting a knife between the wrapper and the package. In this operation little or no trouble is encountered with cellophane, but Pliofilm frequently breaks or "explodes." Coin insertion has been the most difficult nut to crack so far.

Horizon: Goodyear engineers have been working closely with B & W, and the team believes that a bell-ringing product is in sight.

Packaging difficulties have already been at least partly overcome by machine readjustments. For over-the-counter sales, Pliofilm seems to have arrived. And while the remaining kinks are being straightened out, vending machines are being serviced with cellophane-wrapped packs.

Brown and Williamson makes no claims as yet, but Pliofilm is showing real promise. A major obstacle—high price—may well be hurdled if current development leads to higher production.

EXPANSION . . .

Monosodium Glutamate: International Minerals & Chemical is breaking ground for a $1.5 million addition to its Ac'cent processing plant at San Jose, Calif. The new facilities, to be in operation by June, 1953, will boost output by 66%.

•

Cottonseed Oil: Spencer Kellogg has allocated $1 million for its expansion into cottonseed oil processing in California. Two plants at El Centro and Calipatria, and an addition to its present copra plant at Long Beach, will be completed in time for this year's harvest. This is the third major expansion in California cottonseed oil capacity in the past 6 months and reflects the shift in cotton production from the South to the West.

•

By-product Chlorine: Hercules Powder has received NPA approval for a $1,783,200 expansion at its Brunswick, Ga. plant. Major portion of the expansion will be a unit to recover chlorine from the hydrochloric acid now sold as a by-product of toxaphene operation (*CW, Jan. 19*).

•

Fatty Acids: Emery Industries plans construction of a $2 million addition to its Cincinnati fat-splitting facilities. End products will be the diacid, azelaic, and pelargonic acid.

•

Ethanolamines: Jefferson's Port Neches, Tex., unit for mono-, di- and triethanolamines has gone onstream.

•

Ammonium Bicarbonate is scheduled to be in production at the new Solvay Process Division (Allied) plant in Syracuse early this month.

•

Vanillin: Monsanto expects to go onstream at Seattle about April 15 in semi-refining vanillin from waste sulfite liquor (*CW, Feb. 2*).

•

Naval Stores: Construction has begun on a $1.8 million plant at Andalusia, Ala., to extract naval stores from pine stumps. The owner, Gulf Naval Stores, expects it will be ready for use by November.

COMPANIES . . .

Pittsburgh Plate Glass proved itself a Solex-blue chip last week when its first public debt offering ($40 million in 15-year 3% debentures) went on sale. Commented an official of the staid underwriter, First Boston Corp., on the speed with which investors snapped up the debentures: "They got a whale of a reception."

•

Procter & Gamble has borrowed $30 million from several pension funds and from John Hancock insurance interests. Interest rate on the 20-year notes is 3¼%.

•

Pittsburgh Coke & Chemical plans further vertical integration (*CW, July 21, '51*). It now owns about a third of the Great Lakes Steamship Co., and plans to offer stockholders PC&C stock for the steamship stock. The steamship concern owns 15 ore boats and is a Great Lakes carrier for a number

CSC increases METHANOL output

Commercial Solvents Corporation, a leader in the field of petrochemicals, has stepped up production of synthetic methanol at its Sterlington Plant in Louisiana to an all-time high.

Output will be still further increased upon completion of additional units now under construction at Sterlington. Scheduled to be in operation by the spring of 1953, the new $20,000,000 facilities will double both methanol and ammonia output.

High-quality CSC methanol, produced from natural gas, is being supplied at a minimum purity of 99.85% in tanker, barge, tank car, tank truck and drums to all parts of the United States from conveniently located bulk and distribution points. For further information contact the Industrial Chemicals Division, Commercial Solvents Corporation, 17 East 42nd Street, New York 17, N.Y.

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By FRANK CAMERON

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of steel companies in addition to PC&C.

•

National Cylinder Gas has acquired Procter & Gamble's subsidiary Portsmouth Oxygen Corp., and plans to erect manufacturing, office and warehouse facilities in Portsmouth, Va., where the company will operate as the Portsmouth Oxygen division of National.

•

Celanese's subsidiary Canadian Chemical & Cellulose's recent stock offer has been oversubscribed. Control of the company, formerly known as Celcana (*CW, Feb. 9*), is still held by Celanese which owns 4 million shares of stock. The public offering was 1 million shares.

•

Glass Fibers, Toledo, has asked stockholder approval on a proposal to increase authorized common stock from 1 million to 1.25 million. While the company does not plan to issue the stock at present, it wants shares available if the need arises.

•

Liquid Carbonic Corp. directors have approved the sale of $6 million in long term debentures to a group of institutional investors. The board of the Chicago firm plans to call a meeting of preferred stockholders May 15 to act on the proposal.

•

Goodyear stockholders have authorized an additional 10 million shares of common stock, to be issued when needed.

•

National Research Corp. has told the SEC that it plans sale of 100,000 shares of common stock. National (Cambridge, Mass.) would raise about $2 million through the sale; would use the money for working capital.

•

Husky Oil (Cody, Wyo.) plans sale of 300,000 shares of common stock to the public, and 100,000 shares to Northern Natural Gas. Northern, in return, will have first chance at any gas Husky wants to sell. At current prices, the sale will give the company an additional $3 million in working capital.

•

Cleveland Graphite Bronze can be added to the rapidly growing list of companies interested in titanium. Its subsidiary, Brush Development (*CW, Mar. 29*) is now completing development work on a titanium project.

•

Pipeline Notes: Two pipelines—from Edmonton, Alberta, to Vancouver, and one from Salt Lake City to Boise, Idaho—were in the news this week:

• Contracts totalling over $3 million have been awarded as part of the $83 million Transmountain pipeline construction job.

• Salt Lake Pipe Line Co. (Standard of California subsidiary) will construct an $8 million, 330-mile line paralleling an existing line between Salt Lake and Boise. If steel pipe is available, the company plans an immediate start, hopes to complete the line this year.

•

American-Marietta Co. has acquired control of O-Cedar Corp. (both Chicago) through a stock exchange. A-M now owns 85% of the stock of the household specialty manufacturer.

•

Basic Refractories, Inc. has purchased the physical assets of Nevada's Sierra Magnesite Co. and has leased magnesite deposits adjoining Magnesite's Gabbs, Nev., properties.

•

Beryllium Corp. is exploring Brazilian raw material deposits.

•

National Gypsum Co. has acquired Wesco Water Paints, Inc., through exchange of 116,000 shares of Gypsum stock currently worth about $2.5 million, and will operate it as a subsidiary. Wesco's eastern plants, however, will be integrated with Gypsum's other operations.

Oil From Tar Sands

First large-scale exploratory work in extracting oil from the Athabasca tar sands in northeastern Alberta will start this summer with five Canadian oil companies, a Montreal investment banker and one Swedish firm participating.

Mines Minister R. E. Tanner disclosed at a press conference at Edmonton that the five Canadian companies are taking out leases on 250,000 acres in the Mildred Ruth Lake area 320 mi. north of Edmonton and have paid deposits totalling $250,000 to guarantee carrying out their program.

The Athabasca tar sands are from 100 to 200 ft. thick and cover 8,000-30,000 sq. mi. Problem is to separate oil from sand economically.

Sidney M. Blair, Toronto consulting engineer, reported to the Alberta government last year that it was economically feasible to get oil to the Geat Lakes at a competitive price.

He proposed a $45 million refinery in the Ruth Lake area to draw oil from the sands, using a hot water process. Gas, oil and gasoline would be piped to Edmonton after refining, through a $5 million, 8-in. pipeline, thence to the Great Lakes through the existing Interprovincial pipeline.

Pollution Clamp-Down

A new air-pollution law, just passed by both houses of the Kentucky legislature, is likely to have serious effects on the large concentration of chemical plants clustered just outside urban Louisville. Reason: The new law enables Louisville and surrounding Jefferson County to set up county-wide pollution control which heretofore stopped at the city limits.

The upshot will be that the carbide, refining, rubber, and other plants along the Ohio River will have a far more serious pollution abatement problem than previously. A single board will act for both the county and Louisville proper, and the chemical plants will now have to contend with the weight of opinion of a metropolitan center.

Dust, Ash and Odors: Complaints of Louisville residents, that resulted in the new law, center on dust, ash, and odors. Ash from steam power plants is always a problem, and odors from rubber plants and refineries are fairly common-place; but it is the dust from the Jefferson County carbide plants that has really raised civic ire.

The target appears to be National Carbide Co., a division of Air Reduction Co. Its plant, installed early in World War II to supply nearby rubber plants, is labeled the greatest single source of dust in the area. This was not unexpected, for carbide production always involves considerable rock dust. Unfortunate is the fact that the prevailing winds in the region are from the southwest, blowing dust over part of the county and southwestern Louisville itself. Result: Residents of these areas are bitter about rock dust they say sifts into homes and offices —along with the oil and rubber odors and the steam plant ash.

Short-tempered Louisvilleans are loud and definite in complaining of "damage" to house paint and automobile finishes—due, they claim, to the lime content of the dust. All in all they are irked; hence the new law.

Inevitable: National Carbide has plowed a lot of money and energy into efforts to reduce the dust, but with only partial success so far. American Air Filter Co., Louisville, has tried myriads of experiments with various types of filter equipment, but to little avail. Nothing has been found yet that could handle all the dust.

Carbide plants are always going to give off rock dust. The only real answer is to move them far away from urban areas; but this is a radical, often unfeasible, step. There is great expense involved in supplying labor, housing, etc.; pipeline right-of-way difficulties,

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With justifiable pride in our past achievements we try to forget them. Complacency is a poor creator, inventor or improver. So while our day-to-day efforts maintain the rigid standards of our products, our day-and-night thoughts are on how we can serve industry better by further developments in our specific chemicals and their derivatives.

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Fifth "Freon" CUSTOMER DEMAND for

Market for aerosol products rapidly increasing

The number of aerosol users has more than doubled in the last 4 years! The nationwide 1951 Du Pont aerosol market survey shows that 57% of consumers interviewed used aerosol products. This is an increase of 111% over 1947, when only 27% of consumers bought aerosols.

More *new* customers bought aerosols last year than in any year since the surveys began. About 1 user in every 6 was a new customer . . . someone who bought an aerosol product for the first time in 1951.

But the survey also shows that there is still a large, untapped market for aerosol products of all kinds. This market exists at all economic levels and in every region of the country, both urban and rural.

Customers like aerosols . . . come back for more!

The great majority of consumers (97%) reported that they were satisfied with the aerosol products they had tried. Customers like aerosols because they find them more convenient, easy to use, more effective and quick acting. The study shows that there is a steady resale market for aerosols as well as a sharp upward trend of new users.

Insecticides best sellers . . . other products gain.

Insecticides still top the list of aerosols used . . . with room deodorants, paints and mothproofing preparations making strong gains. The newer aerosol products—personal deodorants, shave creams, shampoos, sun-tan preparations and many others—are also rapidly gaining popularity. The majority of users reported that they would continue to buy and use them.

DU PONT
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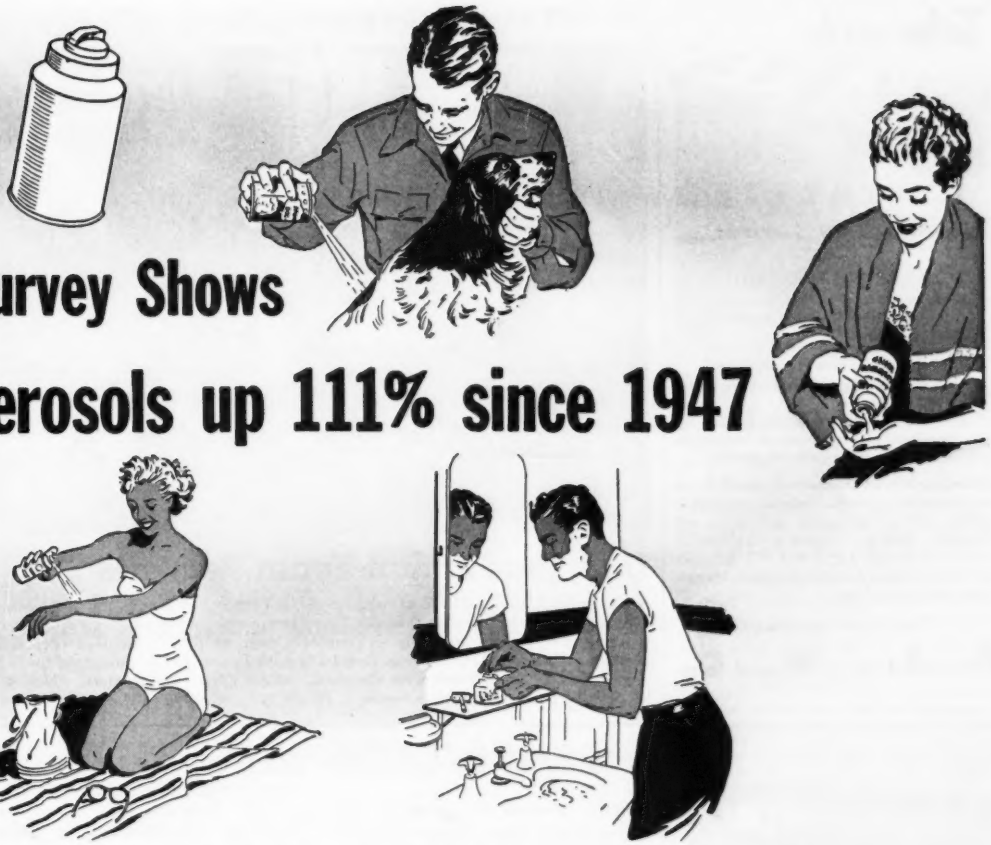
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

"FREON" SAFE



Survey Shows aerosols up 111% since 1947

Customers assured of safety with "Freon" propellents. When a customer considers buying an aerosol, the question of safety is often in his mind. Many dealers have found it helps their sales to stress the safety factors of "Freon" propellents, used in most aerosols. These propellents are nonflammable, nonexplosive, virtually nontoxic . . . harmless to fabrics, furs and finishes.

FREE! Copy of the new "Freon" survey.

This digest copy of the 1951 survey of the aerosol market is yours for the asking. Covers dealer distribution practices, consumer buying habits . . . including for the first time a study among rural residents. Because the steadily increasing number of aerosol products falls into two main groups, household and personal products, the new survey has been extended to give you market data for both types. Write today for your copy of "The Aerosol Market," E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Delaware.

"Freon" propellents meet every aerosol need

21 different "Freon" propellents supplied during 1951 show versatility of these products. For example, four different propellents were supplied for insecticides, three different ones for foam products, three different ones for room deodorants . . . all told, twenty-one different propellents were supplied to aerosol manufacturers during 1951. This is a good example of "Freon" versatility, a property of growing importance in view of the steadily increasing variety of aerosol products.

This means that a "Freon" propellent can be tailored to give just the right particle size, pressure, solubility or other properties to meet any need. So . . . whenever you have any propellent problems . . . be sure to investigate "Freon" propellents. Complete information on their use will be sent on request.

PROPELLENTS

KINETIC
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"FREON" is Du Pont's registered trade-mark for its fluorinated hydrocarbon propellents.

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- for any method of application — laminating, brush, roller-coating or spraying in any form — slabs, drums or solution

Allied starts in where others leave off in the compounding of special waxes. Our highly skilled staff of laboratory technicians are constantly delving into new applications . . . new fields of use. Allied will take any wax problem and give you that worthwhile *extra* in service and results.

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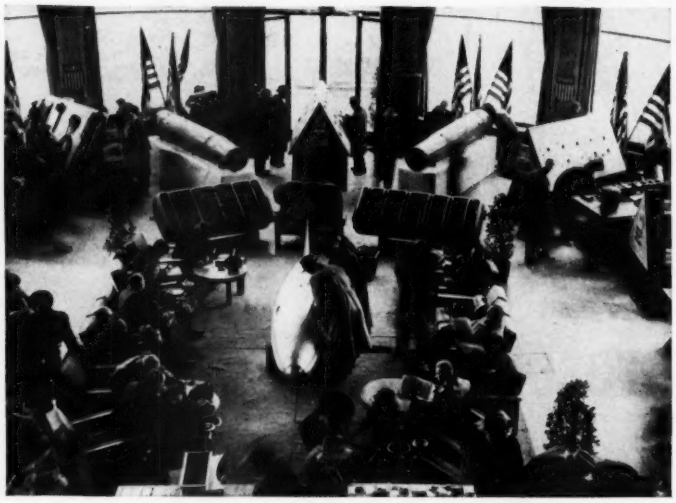

U. S. Production Team Recruits

AN EQUIPMENT EXHIBIT in the giant I. G. Farben Building in Frankfurt/Main, Germany, sponsored by the U.S. Air Force last month, drew 4,000 manufacturers' representatives from nine European countries. Items on display included chemicals, plastics, rubber goods. Object was to get Europeans interested in producing for U.S. Armed Forces. No contracts were discussed, but Air Force made contacts which will be of value when buying time comes.

pipeline costs, and so on, pyramid as the distance away from the point of use increases.

Better Method: Reluctant to take such a drastic step. National Carbide having already spent much money, is now working on a new, experimental, process, which will, it is hoped, reduce the problem to an absolute minimum. Other Louisville companies such as Du Pont and Goodrich are also working on the new method.

It appears that a new technique is needed. The new law quite plainly says that the city means business. Citizens caught in heavy air pollution can be rather unreasonable and belligerent. While it is certain that Louisville would hate to lose these payroll producers, it is also quite obvious that they want drastic measures taken to control the trouble, or they'll take some themselves.

FOREIGN. . . . . .

Chlorine: The Investment Center at Tel-Aviv recently approved the establishment of a $2 million chlorine plant to fill Israel's domestic needs only. The project is expected to develop gradually with the aid of American sponsorship and French, Swiss and Israeli interests.

Organized as Israel Electro Chemicals Ltd. and said to have the backing of the Palestine Economic Corp. of New York, the enterprise will require an initial investment of $800,000 and 400,000 Israel pounds. The foreign currency required is expected to come primarily from the local administration of the U. S. Assistance Program to Israel. Machinery and technical equipment ($800,000 worth) is scheduled to be ordered from foreign sources soon.

At the initial stage, the plant will reach a daily output of about 5 tons of chlorine.

•

Phosphates: The Trieste Press Agency Astra reports that the government of Jordan, with the consent of the Transjordan Phosphate Mines Co. Ltd., has agreed to transfer exclusive rights for the working of the Jordan phosphate mines to the Italian firm, SFIOR. The concession covers a period of 60 years and provides for royalties to be paid to Jordan on the basis of tonnage output.

Proposed output schedule calls for a minimum of 300,000 tons of phosphates per annum in the first two years, with a hike to 600,000 tons for the third year. The Italian company's initial capital will be one million pounds sterling.

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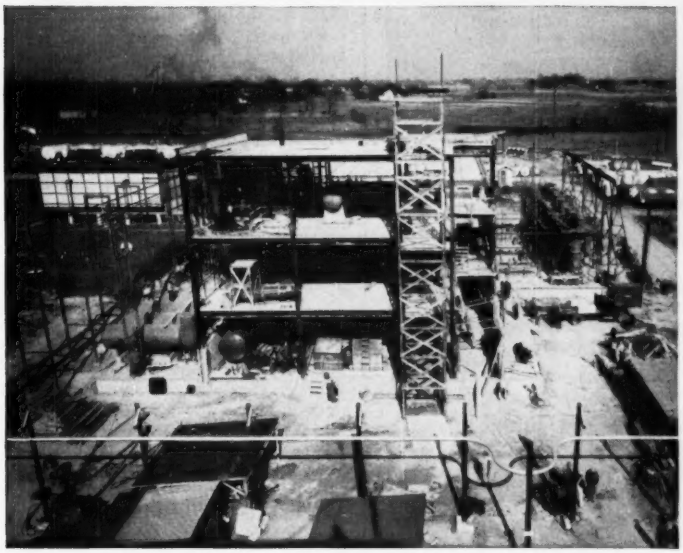
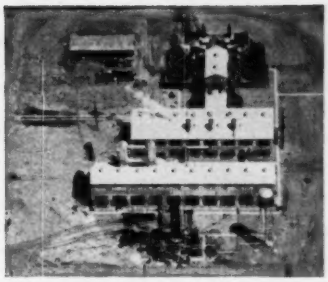
Sulfur: England's first venture in producing elemental sulfur from petroleum has begun on a commercial scale at Shell's refinery at Stanlow, Cheshire. It is being recovered from by-product

Girdler Process News





SULPHUR FROM SOUR GAS

At the Wyoming plant of Texas Gulf Sulphur Company, sour gas, containing about 30% hydrogen sulphide is used as a source of scarce sulphur. The hydrogen sulphide is separated from the gas and converted to sulphur, and the purified gas is sold for normal use. Prime contract for engineering and constructing the facilities, including gas purification plant, sulphur recovery plant, water softening plant, sulphur storage and loading equipment, and buildings, was handled by The Girdler Corporation.

GIRDLER "PROCESS PACKAGE" includes design • • • engineering • • • construction

COORDINATING the countless details involved in construction of a new process plant can be costly to you—in engineering manhours and elapsed time. This job is greatly simplified by placing unit responsibility for engineering and construction with one reliable source.

Girdler serves the chemical, natural gas, and petroleum industries as designers, engineers, and constructors of many types of process plants. The work is supervised by experienced executives who direct a staff of engineering specialists, trained for every job requirement.

For the first step in our planning—obtaining factual data for evaluation—Girdler offers cost-plus contracts covering preliminary engineering. This includes process recommendations, flow diagrams, general equipment specifications, plot plans, cost estimates, and operating cost data. Such coordinated data simplifies planning and assures sound decisions.

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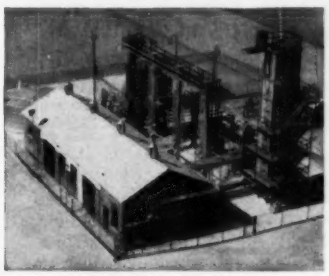
Girdler's Gas Processes Division designs and builds plants for the production, purification, or utilization of chemical process gases; purification of liquid or gaseous hydrocarbons; manufacture of organic compounds. Write for Booklet G-35. The Girdler Corporation, Gas Processes Division, Louisville 1, Ky. District Offices: San Francisco, Tulsa, Atlanta, New York. In Canada: Girdler Corp., of Canada Limited, Toronto.



HYDROGEN PLANT— ONE-MAN OPERATION

This HYGIRTOL* Hydrogen Plant is designed for automatic operation. Instruments control the process, and but one man is needed to keep the plant in operation, furnishing hydrogen at any desired rate. Hydrogen purity generally exceeds 99.8%. Operation is safe, quiet, and clean. The HYGIRTOL Process is engineered, designed, and built by Girdler to suit your requirements.

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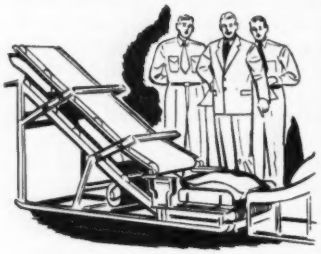
NO. 4 OF A SERIES
ON HOW TO Stretch a
MULTIWALL Paper Bag

It is just good business to get the best possible use from your multiwalls. Here's how Bemis can help you . . .



USE THE EXPERIENCE OF BEMIS SALESMEN AND SERVICEMEN

From installation of equipment to car-loading, Bemis men can often give money-saving help. Here is an actual case:

A mill complained that multiwalls were breaking going through the bag flattener. A Bemis Salesman found that—

1. The chute from the valve packer was too steep. The bags hit the flattener rolls too fast.
2. An obstruction in the chute made small cuts in the bag.
3. The guide rails were too far apart so some bags entered the rolls on the diagonal.

The causes of trouble were eliminated . . . everybody benefited.

USE A BEMIS SEWING MACHINE CLINIC

These clinics are informal instruction periods conducted by specially trained Bemis experts for plant personnel who supervise and use bag closing sewing machines. There are demonstrations and discussions on sewing machine operation and maintenance. Motion pictures show efficient installations, the dismantling and reassembling of sewing heads, etc.

Bemis specialists also assist in planning production line changes . . . and they will recommend new types of equipment, describe latest methods, or help you with special packaging problems.

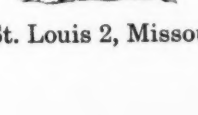
Want the Whole Story?

Ask your Bemis Man for a copy of the illustrated Bemis Multiwall Packing Guide. It deals with Storage, Filling and Closing, Handling, Palletizing and other important subjects that will help you make your multiwall bags serve you better.

• • •

If you need cotton or burlap bags also, Bemis is your best source.

Bemis



St. Louis 2, Missouri

hydrogen sulfide obtained in cracking crude oil fractions.

Shell also plans to erect an acid plant by the end of the year to recover waste sulfuric acid for the refinery's acid requirements.

•

Australia: Imminent Australian import cuts threaten to affect several foreign suppliers severely. Imposed limitations amounting to as much as 20% of the previous quota might touch such commodities as soaps, ethers and chloroform, oils, paints and varnishes, cement, acetic acid, benzol, naphthalene, insecticides, sera and bacteriological products, pharmaceutical preparations, etc.

•

Pyrite Burner: Two United States firms—Dorr Co. and Chemical Construction Co.—won out over the German Lurgi Gesellschaft in the bidding for a pyrite burner contract at the National Power Corp's Maria Cristina hydroelectric and fertilizer project in Manila. The successful bid of $794,000 was entered by Westinghouse Electric Co. on the joint behalf of the two U.S. firms. The German bid of $628,000, while lower than Westinghouse's figure, had been excluded from among the finalists as too informal. Westinghouse accepted as contingent to the contract the guarantee that all equipment be in the Philippines within sixteen months.

176-S

KEY CHANGES . .

Anson B. Nixon: To vice chairman of the board of directors, Hercules Powder Co.

Robert C. Becherer: To director, Link-Belt Co.

William J. Kelly: To director, Link-Belt Co.

Charles S. Munson: To director and member of the executive committee, Penick & Ford, Ltd., Inc. He is chairman of the board of Air Reduction Co.

Richard M. Seitz: To director of market research, acquisitions div., Vick Chemical Co.

Wayne D. Staley: To vice president in charge of sales, Duriron Co., Inc.

Dale Augsburger: To assistant treasurer and director of purchases, Duriron Co., Inc.

J. D. Greensward: To manager, apparatus dept., Allis-Chalmers Mfg. Co.

Harry H. Filler: To manager of manufacturing, Rheem Mfg. Co.

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	SODIUM TRIPOLYPHOSPHATE	TETRASODIUM PYROPHOSPHATE
Chemical Formula	$Na_5P_3O_{10}$ (Anhyd.)	$Na_4P_2O_7$ (Anhyd.)
Typical Analysis	Phosphorus Pentoxide (P_2O_5).....57.5% Sulfates (SO_3).....07% Fluorine (F).....5 ppm* Arsenic (As_2O_3).....0.1 ppm* Lead (Pb).....0.4 ppm*	Phosphorus Pentoxide (P_2O_5).....53.1% Sulfates (SO_3).....07% Fluorine (F).....5 ppm* Arsenic (As_2O_3).....0.1 ppm* Lead (Pb).....0.4 ppm* *Parts per million
Types Available	Powdered and Granular	Powdered and Granular
pH — 1% Sol.	9.7	10.2
Solubility in 100 Parts of Water	25° C.—14.5 pts. 80° C.—23.25 pts. 40° C.—16.25 pts. 100° C.—32.5 pts. 60° C.—19.25 pts.	25° C.—6.0 pts. 80° C.—41.1 pts. 50° C.—16.5 pts. 95° C.—29.0 pts. 75° C.—46.0 pts.
Water Softening Efficiency—percentage of phosphate on weight of water required to secure zero hardness toward soap. Test waters contained 2 to 1 ratio of calcium to magnesium hardness.	Hardness PPM / Room Temp. / 140° F. / 180° F. 50 / 0.05% / 0.05% / 0.05% 100 / 0.11 / 0.11 / 0.09 200 / 0.20 / 0.18 / 0.15 300 / 0.30 / 0.27 / 0.21 400 / 0.39 / 0.33 / 0.27 500 / 0.50 / 0.48 / 0.33 Sodium Tripolyphosphate solubilizes both calcium and magnesium soaps.	Hardness PPM / Room Temp. / 140° F. / 180° F. 50 / 0.21% / 0.21% / 0.21% 100 / 0.38 / 0.30 / 0.26 200 / 0.56 / 0.45 / 0.38 300 / 0.66 / 0.55 / 0.54 400 / 0.75 / 0.69 / 0.69 500 / 0.88 / 0.75 / 0.75 Tetrasodium Pyrophosphate salubilizes magnesium soaps and disperses calcium soaps.
Stability to Reversion in Hot Water Solutions. (Both products are stable for months in solution at room temperature.)	After 10 hours at 160° F. solution will contain approximately 98% STPP (unchanged), 1.2% pyrophosphate, and 0.8% orthophosphate. After 2 hours at 212° F. (boiling) solution will contain approximately 80% STPP, 12% pyrophosphate, and 8% orthophosphate.	After 10 hours at 160° F.—practically no hydrolysis—solution still contains approximately 100% of original concentration of TSPP. After 2 hours boiling—99% TSPP, 1% orthophosphate. After 20 hours boiling—90% TSPP, 10% orthophosphate.
Peptizing and Dispersing of Solid Particles.	Both products are very effective, the choice depending on nature of solid particles to be dispersed.	
Prevention of Iron Stains	These phosphates hold iron in solution, preventing stains due to rusty pipes, equipment, or natural iron in water.	
Uses	Water softening. Builder for detergents and soaps—including bar and chip soap (non-blooming). Industrial cleaners. Dispersant for pitch control in paper manufacture. Clay dispersing. Textile processing. Conditioning drilling muds.	Water softening. Builder for soaps and detergents. Conditioning drilling muds. Industrial cleaners subjected to high temperatures for long periods. Stabilizing peroxide bleach baths. Clay dispersing. Textile processing. De-inking newsprint. Tin plating.

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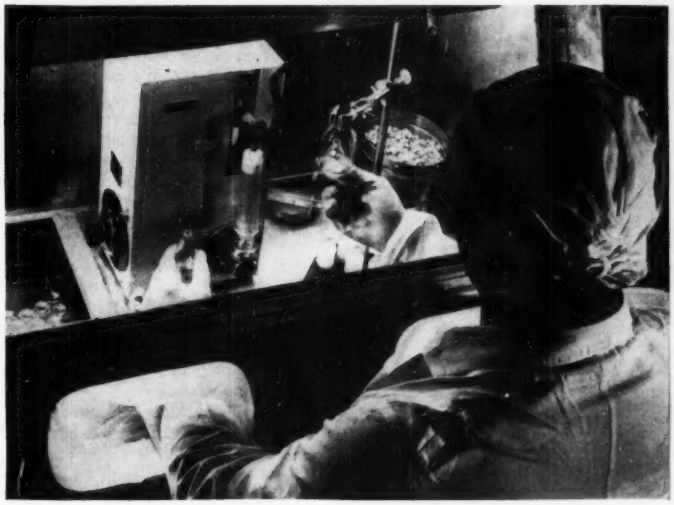

VIALING CORTISONE: New push against an old bottleneck.

New Route To Cortisone

Microbiological oxidation will write the latest chapter in the story of synthetic cortisone.

Upjohn Co. pioneered the technique, uses it in a soon-to-be-publicized new synthesis of cortisone intermediates.

The new Upjohn synthesis has not yet produced any cortisone. But it could mean a relatively simple manufacturing process, more and cheaper cortisone.

If pharmaceutical people are saying, "Here we go again," they have good cause: Cortisone is back in the news. This time the news-maker is Upjohn Co., Kalamazoo, Mich.

Rumors of the Upjohn development have been in the air for weeks; but only rumors. Upjohn, understandably, has been playing its cards close to the vest, hasn't publicly breathed a word of its discovery. But, despite the publicity blackout, certain facts (*CW Newsletter, April 5*) are known.

In Kalamazoo, this week, Upjohn finally admitted:

- It has a new synthesis that holds the promise of cheaper, more abundant cortisone.
- The method, a microbiological oxidation using a species of the Mucorales mold in a sugar-protein hydrolysate media, facilitates the introduction of a keto group in the 11-position of the steroid nucleus.
- Relatively abundant steroids, ergosterol for example, are amenable to the new technique. But it can also be applied to desoxycholic acid, raw material of the commercial Merck and Schering processes.
- Its synthesis does not produce cortisone, only an intermediate.

What It Means: On the face of it, the Upjohn contribution might look like just another try at the cortisone problem. But the steroid chemist cannot fail to appreciate its significance. And here's why.

When cortisone demand left output trailing far behind, a manufacturing process based on an abundant raw material became the number one research objective. Desoxycholic acid, used in the Merck synthesis, is in limited supply, takes 27 steps to convert to cortisone. The problem boiled down to finding a new, more plentiful steroid to replace desoxycholic acid.

Steroids like cholesterol and ergosterol, were likely candidates, but for one failing: Like desoxycholic acid, none contains a keto group in the number 11 structural position; but unlike the bile acid, none possess functional groups to aid the introduction of an oxygen atom in that position.

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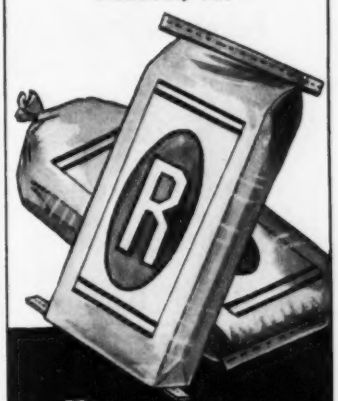
These tough, strong, dependable Shipping Sacks are CUSTOM BUILT. Made in various types, sizes, and strengths, printed or plain. They're sift-proof, dust-proof, water-resistant.

Let Raymond solve your packing and shipping problems of crushed, powdered, and granulated chemicals.

THE RAYMOND BAG COMPANY
Middletown, Ohio



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MULTI-WALL
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Ideal for granulated substances, powders, soaps, abrasives, even some liquids and semi-liquids, Keiding Molded Paper Containers are amazingly strong, light in weight and low in cost.
You may find many economical uses for these containers. They're sturdy enough for shipping, attractive enough for a sales and display package, these containers are available in a wide variety of sizes and shapes. Standard color is white. Write for prices and samples.
Available in nine sizes, ranging from 1 pint to 5 gals., with covers tight-fitting. (Not recommended for shipping liquids.)
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A concerted attack on the problem was launched in several quarters. Success was in the cards. Researchers of Merck & Co. were among the first to reach the goal. Their technique easily coped with the 11-oxygen, converted vegetable steroids (cholesterol, diosgenin, etc.) to 3-acetoxy-11,20-diketoallopregnane. Remaining steps to cortisone provided little trouble.

Independently of Merck, the Mexican firm Syntex S. A., worked out its own way of doing the job. On the strength of its achievement, Syntex blueprinted plans for commercial cortisone production using a tropical yam as source material for its diosgenin steroid.

A Harvard University research group, headed by Louis Fieser, also concentrated on the 11-keto step with gratifying results. It converted methyl-3-α-acetoxy-Δ^9(11)-etiocholenate, a synthetic steroid also obtainable from the degradation of bile acids, to 3,11-diketoetiocholanic acid. The latter is easily worked up to cortisone by now-familiar procedures.

One Step: The work by Merck, Syntex and Harvard provided the key to cortisone from abundant raw materials. To be sure, process development along that line has been in progress since last year. But the techniques developed by the trio are purely chemical, are for the most part delicate and involved procedures not easily transferred to large-scale production.

Beauty of the Upjohn microbiological oxidation is its simplicity. It does the same job in one step. That isn't saying it, too, won't find a bumpy road from the laboratory to the plant. As of now, it hasn't even been incorporated into a cortisone process. But it's a pretty safe bet that cortisone producers will be all eyes when the wraps are off. And if the mold lives up to its billing, jobs won't be hard to find.

The First Step

Antimalarial investigators are arching their eyebrows this week over news from the laboratories of Parke, Davis & Co., Detroit, Mich. The company hasn't found the perfect antimalarial. But it has turned up a new and active group of antimalarial compounds in resorcylic acid and derivatives.

Parke, Davis researchers Moore, Doub and Thompson made the discovery in a study of the antimalarial properties of compounds related to p-amino salicylic acid.

High point of their work came with the realization that resorcylic acid (2,4-dihydroxy benzoic acid) was almost as potent as quinine in combatting some forms of malaria in experimental animals.

It didn't completely eliminate parasites from chicks with well established infections. But that's not surprising, according to reports no commercial antimalarial gives better results under comparable experimental conditions.

Related agents also were promising. Nearly as active as the acid was an amine derivative, 3-amino-β-resorcylic acid. And analogs—like 2,3,4-trihydoxybenzoic acid, 4-methoxy salicylic acid, 4-iodosalicylic acid and 2,3,5-triiodobenzoic acid—showed significant, though somewhat less activity.

In all, approximately 100 compounds were tested, but none proved more potent than β-resorcylic acid or its 3-amino derivative.

Resorcylic acid is less effective on a dosage basis than the modern antimalarials; no one will dispute that. But its significance lies in another direction. It's a new departure in antimalarial chemistry; a potential challenge to the entrenched quinolines (chloroquine, primaquine) and acridines (atabrine); and a logical first step on an intriguing new research trail.

•

Laboratory Boom: Humble Oil & Refining (Jersey Standard subsidiary) has let a contract for a $2.7 million research center in Houston, Tex. Construction is to begin immediately with completion slated by late summer, 1953. The main lab's three floors will provide 112,000 square feet of space, while an adjoining warehouse will add 30,000 square feet to the total.

Humble isn't the only Texas firm expanding laboratories. Jefferson Chemical (at Austin) is now charting needs in research facilities for the next 25 years, with an eye to growth.

•

Enzyme Diversifying: Reheis (Berkeley Heights, N.J.), which up to now has concentrated much of its efforts in aluminum and magnesium chemicals, has established an organic chemical division, which is to produce such vegetable enzymes as tyrosinase, ascorbic acid oxidase, and invertase. The enzymes, currently available in research quantities, will go commercial when the demand justifies.

•

Morphine Specific: Merck has begun distribution of a specific antidote to overdosage of morphine, meperidine and methadone. It's N-allylnormorphine, sold under the name Nalline. While not a cure for drug addiction, it offsets the respiratory depression which can be brought about by narcotic overdosage. But it cannot be

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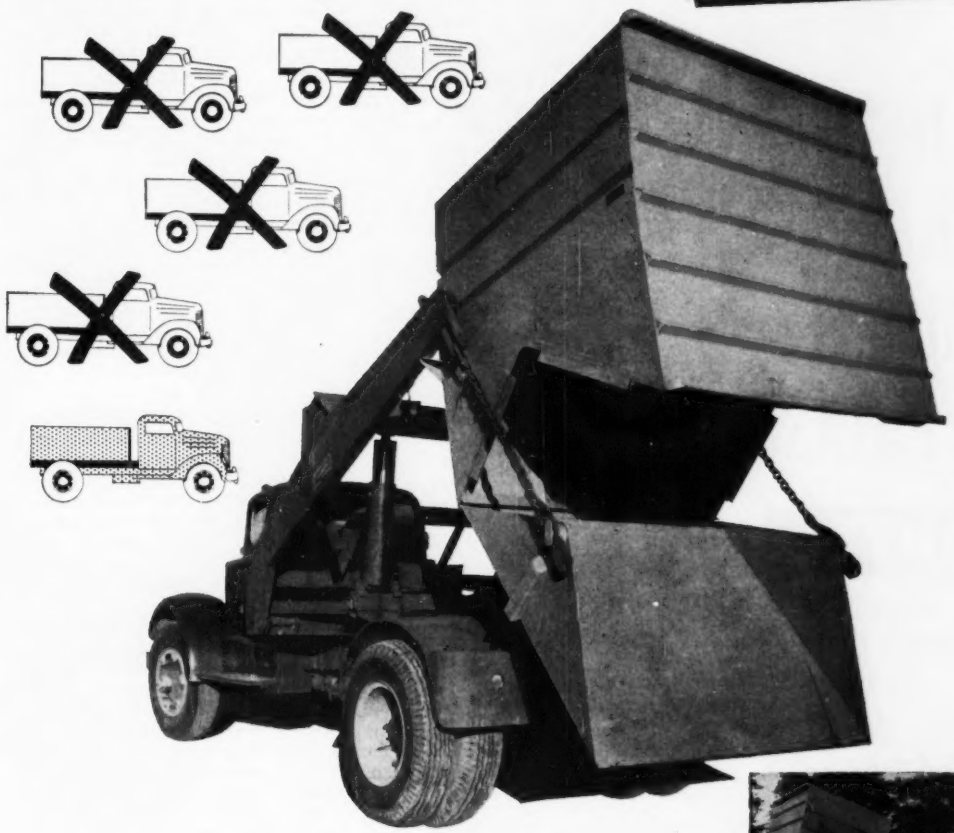

In many plants handling materials by the Dempster-Dumpster System, one truck-mounted Dempster-Dumpster, operated by only one man, the driver, has replaced 3 to 5 conventional trucks and crews. One Dempster-Dumpster services a multiple number of detachable containers in a wide variety of designs best suited to the type of materials handled—be they bulky, light or heavy . . . solids or liquids . . . trash or rubbish. Containers are conveniently located at accumulation points inside and outside buildings. The Type LFW Dempster-Dumpster shown above handles containers up to 12 cu. yds. Containers up to 21 cu. yds. are available with our Type ARLF and DTLF Dempster-Dumpsters. Without question, the Dempster-Dumpster System is the most economical and most efficient method of plant materials handling by truck yet devised! Write today for complete information. Manufactured exclusively by Dempster Brothers, Inc.

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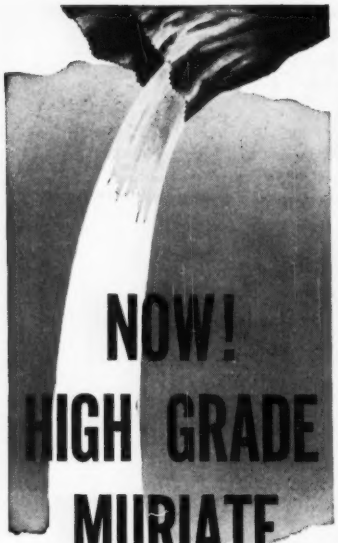

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used to combat depression caused by barbiturates, cyclopropane or ethyl ether. An opium derivative, Nalline is subject to Federal narcotic laws, available only on prescription.

•

Boron Boon: Small amounts of boron fertilizer have stepped up alfalfa seed yields in experiments conducted by Iowa State College agricultural researchers. In terms of seed yields, 30 pounds of boron fertilizer gave better results than 300 pounds of 20% superphosphate. But that's not the whole story. Phosphate gave good forage yield increases, boron didn't.

•

Opinion: In Buffalo recently, Edward U. Condon, former director of National Bureau of Standards, called for amendment of the much-discussed McCarran Act "at the earliest possible" moment. His reason: The Act is "damaging to the progress of science in this country and is doing much to damage the general prestige of our country among intelligent people abroad."

Condon, now research director of Corning Glass, said the Act keeps many noted scientists out of the U.S. It's designed to prevent entry of persons with present or past subversive affiliations.

•

Grants: More than $370,000 in scholarships, fellowships and grants will be offered by General Electric Co. for the 1952-53 school year under an expanded educational assistance program.

According to G-E president, Ralph J. Cordiner, the decision to boost the aid program stems from a company survey which emphasizes the need for stimulating interest in technical training among students.

•

New Elastomer: A new Du Pont elastomer is now making its debut. It's chlorosulfonated polythene, made by treating polythene with chlorine and sulfur dioxide. According to the company, characteristics of properly formulated and cured products are: good abrasion resistance; and "unusual" durability to ozone, oxygen, heat and weather. Potential outlets are in tire treads, white sidewalls, wire and cable covering, coatings, mechanical goods and protective films.

•

Plastic Assist: A plastic-fortified concrete that promises to be twice as strong as ordinary concrete is the development of Severo V. Amagna of California-Texas Oil Co. and Brian B. Mellor of Massachusetts Institute of Technology. The mixture, formulated with a vinyl polymer, has good resistance to corrosion and impact, is self-curing in air at ordinary temperatures and humidities. And bonding strength to old concrete surfaces is about ten times that of plain cement mortars.

•

Just Out: Rohm and Haas Co., Phila., Pa., is now out with two new, low-cost vinyl plasticizers. They will be trade-named Monoplex S-38 and S-71.

•

Micro Nitrogen: A new microanalytic procedure for organic nitrogen has been developed by British researchers. Here's how it works:

The specimen is digested with sulfuric acid and hydrogen peroxide. Resulting ammonium sulfate then is treated with a known volume of standard buffered hypobromite solution which oxidizes ammonia to nitrogen. Excess hypobromite, determined by titration with sodium thiosulfate, is subtracted from original volume to give a measure of nitrogen content.

•

Shock Stoppers: French investigators of the Societe des Usines Chimiques Rhone-Poulenc have been awarded an American patent (2,553,093) on the use of N-(aminoalkyl)ethanesulfonamides in the treatment of traumatic or hemorrhagic shock. Especially effective in this capacity was (N,N-diethylaminopropyl) ethane sulfonamide.

•

Grease Aid: Witco Chemical Co., New York, N.Y., is now offering lithium hydroxystearate. The lithium salt of 12-hydroxystearic acid, the new product is useful as a gelling agent in the manufacture of synthetic greases.

Witco says that greases prepared with its metallic soap have good shear stability, high dropping points, low volatility, good resistance to wear and water. The commercial material is available as a white powder of 99% fineness through a 100 mesh.

•

Repellent News: Insect repellents that can be applied to clothing for protection against mosquitoes, mites, flies and ticks are under development at the Orlando, Fla., laboratories of U.S. Department of Agriculture. Best mixture found so far includes benzyl benzoate, n-butyl acetanilide and 2-butyl-2-ethyl-1,3-propanediol.

•

Pressure Cutter: A new blood pressure reducing agent has been developed by researchers of Ciba Pharmaceutical Co. It's 1-hydrazinophthalazine, combines therapeutic value with low toxicity. Ciba has tagged the compound with code-number BA-5968.

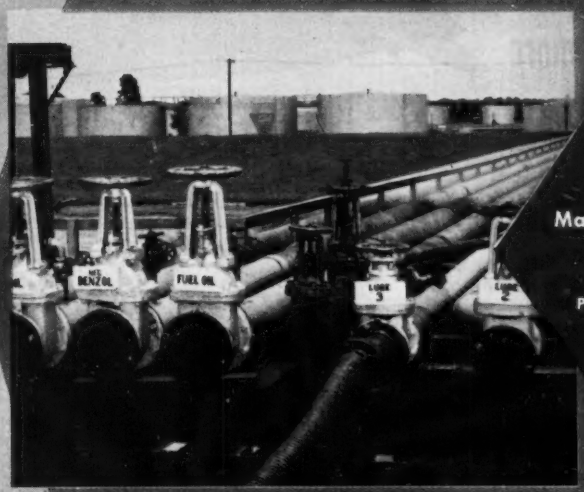
Further evaluation of the new drug is now under way.

clean or dirty

clean or dirty

clean or dirty

clean or dirty



5 TANK STORAGE TERMINALS . . .

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CHEMICALS — PLASTICS

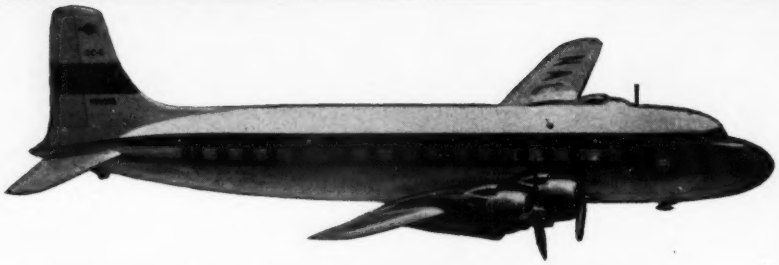
FOR YOUR INFORMATION

Every month Monsanto publishes these pages of pertinent information which may be helpful to you. This issue discusses:

Intermediates — AROCLORS in Paints 5-5
Wood Preservative — AROCLORS in Maintenance Paints
Rubber Proofing — AROCLORS in Heat Transfer
Hydraulic Fluid — AROCLORS as Co-plasticizers

Additional information will be furnished on request.

SKYDROL... up there with more and more big names!



Since Skydrol * was announced in January 1949, the nonflammable-type hydraulic fluid has won amazing acceptance among the big names of aviation.

Today, every domestic air line flying DC-6's employs Skydrol in cabin superchargers or throughout the hydraulic systems. Skydrol now serves 11 major air lines in planes with total flying hours exceeding a half million. It also is used by a number of overseas lines.

In addition, the new Convair 340's, designed for United Air Lines, have Skydrol throughout. It is employed in Douglas DC-6B's and Super DC-3's.

Air lines employing Skydrol are: United Air Lines, American Airlines, Italian Air Lines, Delta Air Lines, Cia Mexicana de Aviacion, Panagra, Philippine Air Lines, Braniff International Airways, National, Capital Air Lines and Slick.

Skydrol means greater safety for planes in flight and while they are being serviced. It protects passengers, service personnel and the multimillion-dollar investment in aircraft. Skydrol also is an excellent lubricant. It lengthens the life of hydraulic systems' working parts, brings important savings in maintenance.

Skydrol exceeds the nonflammability requirements of Aeronautical Material Specification 3150 . . . has more than double the lubricity of ordinary hydraulic fluids . . . is stable at operating temperatures and pressures . . . is noncorrosive to aircraft metals . . . is nontoxic.

If your company operates a business plane, if you fly your own ship or if you are an air line executive, it will be worth while to get complete information on Monsanto Skydrol. Mail the coupon for a copy of Monsanto's new, 20-page, file-size booklet, "*Skydrol Nonflammable-Type Hydraulic Fluid for Aircraft.*"

Score of railroads use penta wood preservative

More than a score of major railroads are among the hundreds of industries employing Monsanto Penta preservative to make wood last many years longer, thereby reducing maintenance costs.

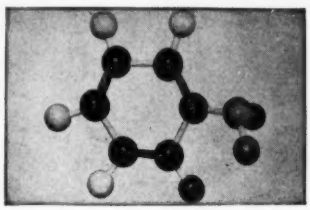
The following table gives the recommended retention of 5% penta solution in pounds per cubic foot:

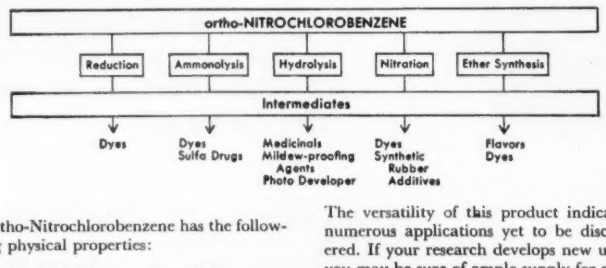
	Humidity average to low	Humidity average high
Sills and plates	6	8
Joists and girders	6	8
Screeds and subflooring	6	8
Factory flooring	6	8
Roof plank	6	8
Platforms and decking	6	8
Posts and fences	6	8
Cooling towers	..	8-10
Sign material	6	8
Millwork	6	8
Highway guardrails	6	8
Railway cars	6	8
Bridge timbers	8	10-12
Utility poles	8	8-10
Crossarms	6	8

NOTE: Higher treatments are recommended where wood is to serve under severe conditions, such as in the tropics. Recommendations will be furnished on request.

Ortho-NITROCHLOROBENZENE, an "intermediate's intermediate"

Monsanto ortho-NITROCHLOROBENZENE might be called "an intermediate's intermediate" because of its versatility in the manufacture of derivatives which serve as intermediates. Its wide service to industry is illustrated by the following chart:





Ortho-Nitrochlorobenzene has the following physical properties:

Molecular weight	157.56
Standard form	Crystalline mass
Color	Greenish yellow
Crystallizing point	31.7° C. Min.

The versatility of this product indicates numerous applications yet to be discovered. If your research develops new uses, you may be sure of ample supply for production. Qualified chemists may get samples for experimentation by contacting the nearest Monsanto Sales Office or by mailing the coupon.

Milmer 1 controls mildew

Textiles, plastics, leather, insulation and protective coatings can be mildew-proofed efficiently and economically with Monsanto Milmer* 1 (copper 8-quinolinolate-T). Although highly effective against various fungi, Milmer 1 is practically nontoxic to man—is neither a skin irritant nor sensitizer.

Milmer 1 offers long-lasting protection. It is nearly odorless . . . practically insoluble in water . . . stable at temperatures up to 400° F. . . . is exceptionally stable under exposure to sunlight and weather.

Milmer 1 meets many U. S. Government specifications for treated fabrics, including: Mil-D-10860, Mil-T-10168A, Mil-M-5658, Mil-F-4143 and KKL-136-B.

For information, contact the nearest Monsanto Sales Office or mail the coupon.

NOW AVAILABLE

AROCLORS

IN LARGER QUANTITIES

Additional capacity now installed makes the AROCLORS* (chlorinated biphenyl and chlorinated polyphenyls) freely available in larger quantities. For information on their use, contact any Monsanto District Sales Office, or write for any of the following Technical Bulletins: No. P-115, "THE AROCLORS" . . . No. P-124, "AROCLORS as used in chlorinated rubber" . . . No. P-126, "AROCLORS as used in Pliolite S-5" . . . No. P-131, "AROCLORS as co-plasticizers for polyvinylchloride."

Because of the growing recognition of the value of the AROCLORS in many types of chemical processing and formulating, some of the more important applications of these Monsanto chlorinated biphenyl and chlorinated polyphenyls are detailed in the columns at the right.

AROCLORS as used in Pliolite S-5

The AROCLORS are standard plasticizer and resin extenders used to impart desired properties to Pliolite S-5 protective and decorative coatings for application to—Concrete and Steel Structures . . . Railway Tank Cars . . . Concrete Floors and Walls . . . Stucco Construction . . . Wood and Metal Maritime Equipment.

These fast-drying paints provide excellent protection against acids and alkali, moisture and other common corrosive influences.

AROCLORS in die-casting machines

In the nonflammable hydraulic fluid field, particularly in die-casting machines, AROCLOR continues to be recognized as one of the most economical and effective of the nonflammable-type fluids used in transfer service. Die casters wishing to take advantage of the reduced fire hazard provided by AROCLOR, will find no difficulty in conversion. Ask for further information.

TOUGH PAINTS for tough jobs

If you are formulating a metal-surface paint that must be tough enough to resist water, acids, alkali and other corrosive actions, investigate the AROCLORS. They also contribute nonflammability, superior adhesion, high gloss. In addition, they possess good electrical properties.

Among the many uses of the AROCLORS in the coatings field are—Modified and synthetic rubber coatings . . . Lacquers . . . Hot-melt strip coatings . . . Vinyl protective coatings . . . Maintenance paints . . . Adhesives . . . Fire-resistant coatings . . . Wood-sealer formulations . . . Marine paints.

AROCLOR 1248 heat-transfer medium

AROCLOR 1248 (chlorinated bipheny!) is an ideal nonflammable liquid phase heat-transfer medium for temperatures up to 300° C. It has been successfully used for many years with gas-fired units, having capacities in the range of 200,000 to 400,000 B.t.u. per hour—and more recently in much larger units. Other small electrically heated stationary and portable units, with capacities around 40,000 B.t.u. per hour, are also in service.

Some of the more important characteristics of AROCLOR 1248 are—Freedom from fire hazards . . . Viscosities permitting pumping at room temperatures . . . Boiling point sufficiently above 300° C. to assure a liquid condition at all times . . . Stability against heat . . . Controllable vaporization losses . . . General freedom from corrosive action.

For application information, send for Monsanto Technical Bulletin No. P-130, "An Indirect AROCLOR Heater for Unit Chemical Operations."

AROCLORS and biological resistance

Some recent tests which involved the standard screening procedure using the shake-flask method showed that Monsanto AROCLORS exhibited distinct resistance against fungi and bacteria. The presence of this resistance in a commonly used plasticizer indicates that further study of the AROCLORS could prove highly interesting where various types of organism attack are encountered. Excellent termite and other soil mite repellency are additional AROCLOR features.

• • • • • • • •

MONSANTO CHEMICAL COMPANY, 1700 S. Second Street, St. Louis 4, Missouri. District Sales Offices: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle. In Canada, Monsanto Canada Limited, Montreal.

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Chemists see new uses for fatty alcohols

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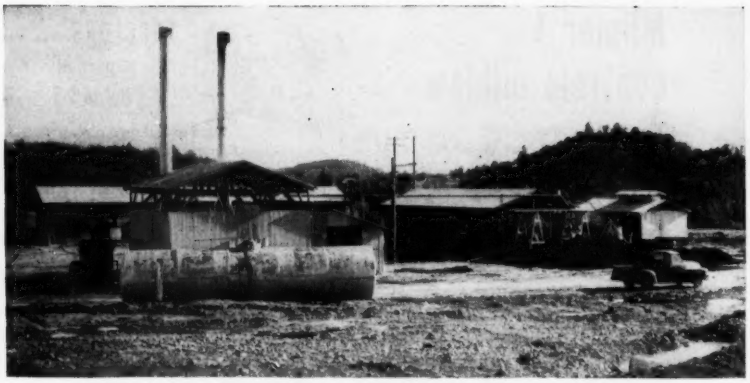
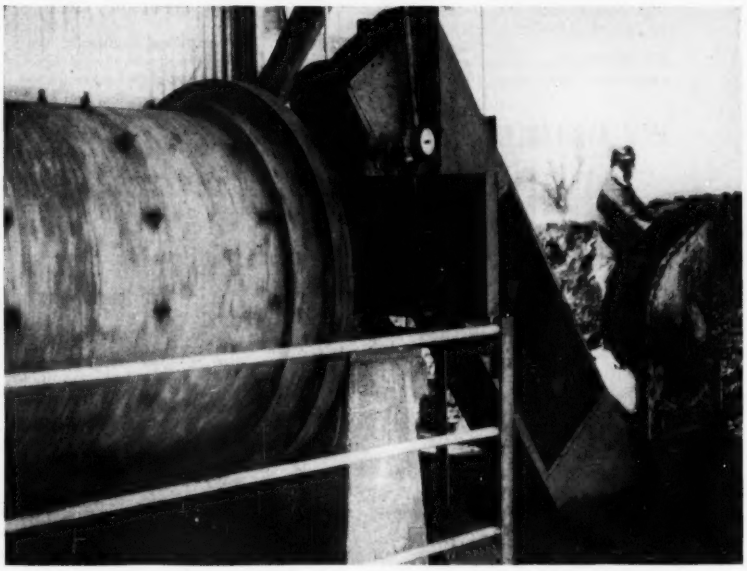
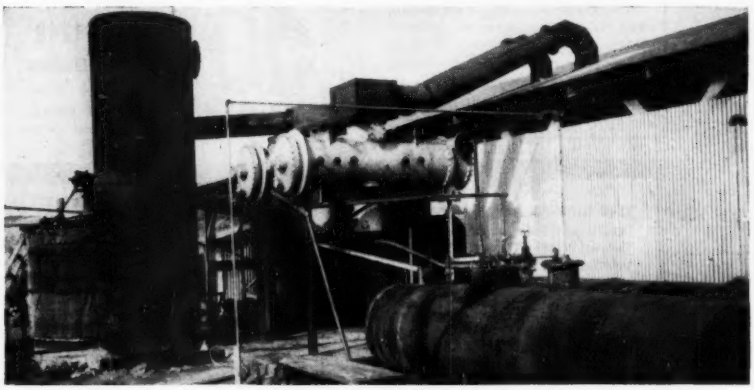


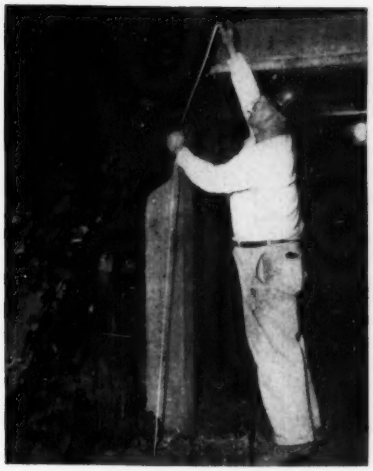
1 HUMACID PLANT for montan wax takes advantage of California weather to beat high construction costs, reduce vapor hazards due to solvent leaks.



4 IT IS GROUND TO 20 mesh, classified and stored. It is then sent to the ball mill where it is mixed with metered amounts of solvent, ground to 200 mesh.

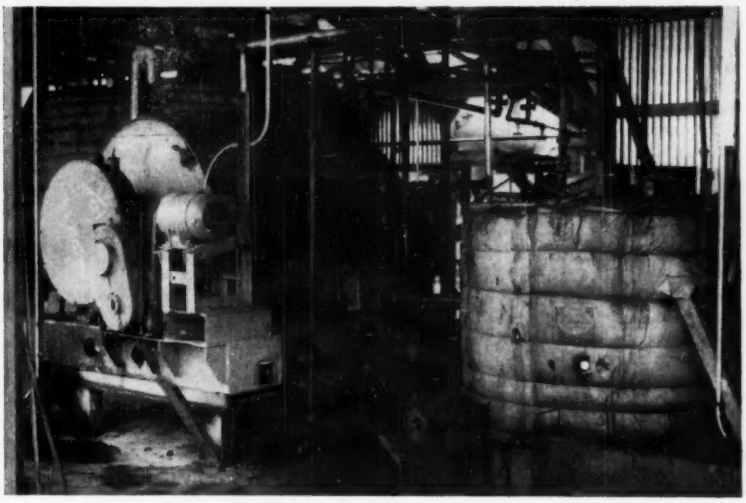


6 RECYCLING CUTS SOLVENT COSTS to about 2½¢ per lb. of wax. Wax-free lignite is sent to a caustic tank (far left) for humic acid production.



2 CALIFORNIA LIGNITE veins average 11 ft at varing depths.

3 RAW LIGNITE IS HAULED to surface in hand cars for processing.



5 PRIMARY EXTRACTION is carried out at 75 C. After filtration, wax is recovered, passed through a secondary extractor, filtered, flaked and packaged.

PRODUCTION. . . .

Domestic Push for Montan

Before the summer is over, Humacid Co. (Calif.) will go into full-scale production of montan wax. Currently turning out limited quantities while its products are being test marketed, Humacid is joining American Lignite Products (DeAngelis Coal subsidiary) in an effort to free domestic montan consumers from dependence on German sources of supply.

The two companies are located a few miles from each other in California's Mother Lode country. Both are working the same bed of lignitic coal—the largest suitable deposit in the country, and the only suitable one outside of Arkansas.

Montan imports from Germany which averaged 5,000-6,000 tons a year before the war are now down to 900 tons. Humacid has a processing capacity of 30 tons of lignite per 24-hr. day; American Lignite, 20. With an approximate yield of one ton of wax per ten tons of lignite, that means America can produce 5 tons of mon-

Mono
Laurates
Di

of

- DIGLYCOL
- ETHYLENE GLYCOL
- DIETHYLENE GLYCOL
- POLYETHYLENE GLYCOL

- PROPYLENE GLYCOL
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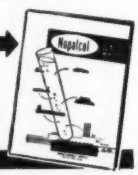
NEVER has Nopco* been able to offer such a variety of synthetic organic surface active agents.

NEVER has such a wide choice of these important materials been available from a *single source*.

Many of these Nopalcols have already been extensively used to great advantage, but the tremendous possibilities of some of the newly-developed materials have not yet been fully explored. Innumerable modifications are possible—to suit specific requirements.

Profit by Nopco's unequalled experience and research in the field of ethylene oxide condensates—and consult with us. We'll gladly put our fund of specialized knowledge at your disposal, and work closely with you to help adapt the Nopalcol chemicals to your processing operations.

This FREE book is full of valuable information, and includes a "Selection Chart" to help you choose the most suitable Nopalcol for your job. Send for a copy today.



*Reg. U. S. Pat. Off.

NOPCO CHEMICAL COMPANY Dept. EOC
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PRODUCTION

tan a day or almost twice as much as it imports.

First Push: Some time back, the Bureau of Mines looked into the possibilities of domestic production of montan. Using a process similar to the one employed by Germany's I.G. Farben, it found that yields from California and Arkansas lignite were comparable to those from German coals but the resin content of the wax was higher.

Domestic montan got its first big commercial push during World War II when American Dyewood, producing sodium humate from a lignite deposit near Malvern, Ark., developed a method of extracting montan as a by-product. But like the Bureau of Mines, American Dyewood found the wax's resin content too high for it to be commercially acceptable and the plant closed down when the market for sodium humate tapered off.

Raymond Drew, American Dyewood research director, however, believed that a suitable montan could be produced domestically and in 1947 left American Dyewood to join American Lignite in exploiting the California deposits. Even though German and Czechoslovakian wax was back on the market by that time, Drew was convinced he could develop an American product that could win acceptance on its own merits. His reasoning: Consumers of European montan had long complained of batch to batch variations in the wax. Drew felt they would be willing to pay more for a uniform product.

Apparently Drew was right, for domestic montan seems to be catching on here despite the fact that costs are about 30% higher than the German product all along the line.

Two-Step Key: Early last year, Drew left American Lignite to join Humacid as technical director and plant manager. Under the direction of Drew and President Fritz Huntsinger (also president, Ventura Tool Co.), the new company turned its attention to production of montan and humic acid.

A new extraction process was worked out to control the resin content of the wax and to produce humic acid as a quebracho replacement in drilling muds. Key to the process is a two-step extraction. After a first extraction with a highly aromatic solvent (about 50% unsaturated), the wax is redissolved in a light petroleum cut virtually free of aromatics. The secondary extraction provides preferential solubility for different types of waxes, different concentrations of asphalts and resins. Control factors are the aromatic content of the solvent and the temperature of the extraction.

Furthermore, says Drew, bleached montans, comparable to I.G. type S and useful as carnauba replacements can be made at competitive prices through a special technique which permits recovery and reuse of the chromic acid bleaching agent. Formerly, high costs of the chromic acid had hampered American efforts to bleach waxes, but Drew says the Humacid method has cut costs from 25¢-30¢ a lb. to 5¢ a lb. Sale of residual lignite as a soil conditioner also helps keep costs down.

Add Waste Utilization

Crown Zellerbach Corp.'s program to control stream pollution has yielded a novel product for commercial use. Obtained from waste sulfite liquor and trade-named Orzan, it is essentially ammonium lignin sulfonate and wood sugar. Uses: as an adhesive, wetting agent, dispersant, soil conditioner, yeast nutrient and as a raw material for other organic chemicals.

The new development was made possible when Crown Zellerbach switched from the usual calcium base to ammonium base sulfite allowing more rapid concentration of spent liquor. Sulfur dioxide is recovered when the concentrate is burned as fuel.

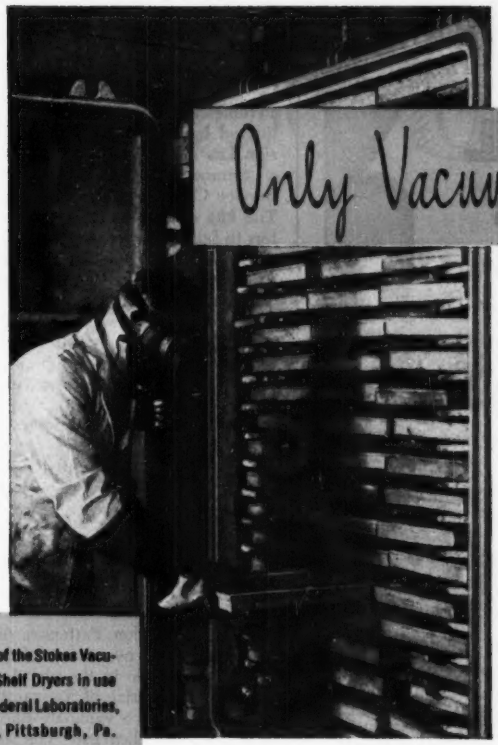
Corrosion - resistant evaporation equipment to produce the material is being installed in the company's Lebanon, Ore. mill. Orzan is available in commercial quantities as a 50% liquid, in experimental quantities as a spray-dried solid.

EQUIPMENT

Mercury Vapor Detectors: Lighter, more compact instruments for detecting toxic concentrations of mercury vapor have just been designed by General Electric. Portable Type A (electronic) and Type B (chemical) detectors may prove useful to manufacturers of electrical apparatus and to the chemical, metal mining and smelting industries, as well as to insurance companies, public health departments and laboratories.

The electronic instrument indicates presence of mercury vapor by resonant absorption of ultraviolet energy. It will give instantaneous readings ranging from 0.01 to 3.0 milligrams of mercury per cubic meter of air. The chemical detector is based on activated selenium sulfide, which will darken in the presence of mercury. It is designed for continuous monitoring and will indicate as little as 0.10 milligrams of mercury per cubic meter

Only Vacuum dries to 0.35%



One of the Stokes Vacuum Shelf Dryers in use at Federal Laboratories, Inc., Pittsburgh, Pa. Operators wear gas masks when removing trays of the tear gas crystalline solids processed in Stokes Dryers.

In the manufacture of tear gas, a crystalline solid is produced, the moisture content of which must be reduced to 0.35% without permitting the volatile solid to sublime as an irritant gas.

Vacuum drying of tear gas solids is done by Federal Laboratories, Inc., Pittsburgh, Pa., in Stokes Vacuum Shelf Dryers at 100° F. A vacuum of 2 to 10 microns is used to achieve the desired dryness while maintaining safe working conditions.

Trouble-free service by Stokes equipment in Federal Laboratories assures constant high production of the active material for tear gas devices used by police and military.

Many materials which are sensitive to heat, evaporation or oxidation, and which cannot be agitated, are best processed in Stokes Vacuum Shelf Dryers. Chemical salts, dyes, food extracts, glues, rubber and explosives are typical products which can be dried safely, rapidly and economically in vacuum at low temperatures.

Available in many capacities, Stokes Vacuum Shelf Dryers are designed for drying products which must not be agitated or require no mixing.

See Stokes — the only manufacturer of complete vacuum processing systems — on your present vacuum processing problems or arrange for tests in the Stokes semi-plant-scale laboratory.

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Industrial Tabletting
and Powder Metal Presses,
Pharmaceutical Equipment,
Vacuum Processing Equipment,
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This business paper is a member of the Associated Business Publications. It's a *paid*-circulation paper . . . which means the editors must keep their magazines well sold, well read. They meet other editors in clinics, conferences and courses . . . working to make a good paper a better paper, to serve you in more ways. Your business paper is worth every minute you spend with it!

CHEMICAL WEEK

One of a series of advertisements prepared by THE ASSOCIATED BUSINESS PUBLICATIONS

PRODUCTION . . . . .

of air in two hours—the toxic limit as established by American Standard Assn.

•

Pyrometer Converter: On sale on a limited basis for three years, conversion kits are now being marketed on a commercial scale by Pyrometer Service Co. (North Arlington, N. J.). The kits convert mechanical pyrometers to full electronic operation at one-third the cost of a new electronic pyrometer. Installation can be made by an inexperienced operator in four hours with a screwdriver, soldering iron and pliers, says the company. Performance is said to compare favorably with modern electronic models.

•

Resistant Fire Extinguisher: Red Comet, Inc., (Littleton, Col.) has brought out a new automatic fire extinguisher that is said to be resistant to rust and corrosion. It is made of a fireproof plastic; the few metal parts are cadmium plated.

•

Dioxide Detector: At the recent meeting of the American Chemical Society in Buffalo, Gordon Patterson of Du Pont described a new means of detecting sulfur dioxide in the air: A glass tube, about the size of a cigarette, is filled with either a vanadate-silica gel or a periodate-silica gel. The former turns yellow to green in the presence of sulfur dioxide; the latter, from white to pink or red brown. By measuring the intensity of the color, it is then possible to determine the concentration of the gas. Patterson sees it as a simple, on-the-spot means of detecting sulfur dioxide in pollution studies, figures it will replace tedious laboratory analysis.

•

Slurry Valve: Fisher & Porter (Hatboro, Pa.) has brought out its Ratograve Valve designed primarily for proportioning and controlling pulp and paper stock, similar slurries. Big feature claimed for the valve: Since it throttles automatically and remains free from plugging at flow rate down to 30 gpm., it assures an operation range of thirteen to one or better.

•

Heat Control: Minneapolis-Honeywell Regulator Co. (Phila., Pa.) is introducing a new instrument to control electrically-heated or fuel-fired industrial process equipment. Called the Brown pulse Pyr-O-Vane controller, it's a time-proportioning indicating millivoltmeter controller. According to the company, its use on small heat treating furnaces, plastic extruders and nylon heat setting equipment will make for improved quality and fewer rejects.

PICCOLYTE

the VERSATILE resin

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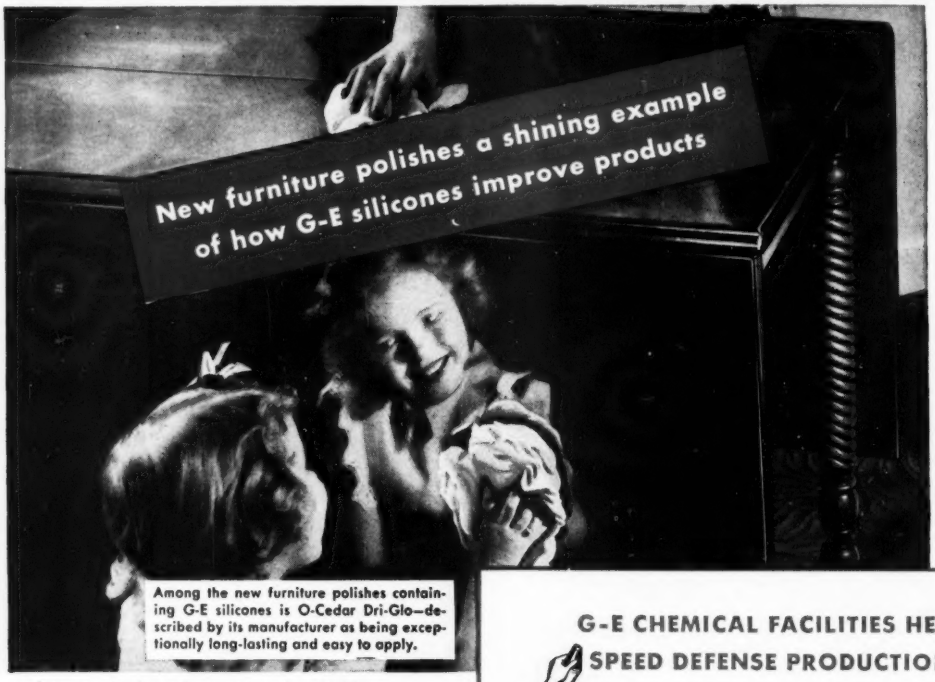
DISTRIBUTED BY PENNSYLVANIA FALK CHEMICAL COMPANY, PITTSBURGH 30, PA.
AND HARWICK STANDARD CHEMICAL COMPANY, AKRON 5, OHIO

Chemical Progress

News of developments from General Electric's Chemical Department that can be important to *your* business.



Among the new furniture polishes containing G-E silicones is O-Cedar Dri-Glo—described by its manufacturer as being exceptionally long-lasting and easy to apply.

Once again the unique properties of silicones are helping to revolutionize an industry. Furniture polish manufacturers (like O-Cedar Corp'n) find that a properly formulated polish containing G-E silicone oils combines the protective qualities of wax with the easy application features of oils. G-E silicone oils also make furniture polishes more resistant to ultraviolet rays and to water.

Industry already knows how auto polishes have been improved by adding General Electric silicone oils. The new success in the furniture polish field is expected to encourage still other polish makers to improve their products through G-E silicones.

G-E CHEMICAL FACILITIES HELP SPEED DEFENSE PRODUCTION

General Electric chemical products expedite the nation's preparedness program in many ways. G-E chemical plants from Massachusetts to California are turning out such vital defense items as plastics parts, insulating materials, silicone products and protective finishes.

The pistol-grip handle for this searchlight is molded of G-E rubber-phenolic compound. The high internal resilience of this compound reduces breakage during assembly and in actual service. G-E rubber-phenolics have *five times* the shock-resistance of conventional phenolics.

Interested in better polishes? Write for details to Chemical Department, General Electric Company, Pittsfield 13, Massachusetts.

PLASTICS COMPOUNDS • SILICONES • INSULATING MATERIALS • GLYPTAL® ALKYD RESINS • PLASTICS LAMINATING, MOLDING, AND EXTRUDING

You can put your confidence in

GENERAL ELECTRIC

SPECIALTIES . .

Thirsty, for Profit

Fast-growing synthetic sponge industry, already with $10 million annual sales, plans 50-100% expansion for coming year.

Du Pont and O-Cel-O, splitting an estimated 90% of the volume, count on household applications to take increasing output; others will push the home angle too.

One blooming prospect, cellulose sponge yarn, is currently a Du Pont exclusive.

Out to make enough synthetic sponges to supply every household in the nation, the top producers of man-made sponges have slated 50-100% expansion of facilities.

Du Pont last month began rehabilitating a plant at Columbia, Tenn., to meet demand that has more than tripled in the past six years. The new plant, not quite as large as the now-producing Yerkes works in Buffalo, will substantially increase Du Pont's output by the end of 1952.

O-CEL-O'S BITZER: Peace or war, the market won't be saturated.

O-Cel-O, which with Du Pont shares an estimated 90% of the $10 million annual business, is set to start construction on an addition to its present Buffalo facilities that will up production 50-90%.

Among the other makers, Nylonge (Cleveland) has slated "substantial" expansion, due in within 6 months; Burgess Cellulose Co. (Freeport, Ill.) still equipping October-bought plant, and the Alton Manufacturing Co. (Alton, Ill.) also count on upping production in varying amounts. Ivalon Corp., making a vinyl resin sponge (the others are cellulose), hasn't revealed expansion plans.

And the domestic producers will face increased foreign competition: American Sponge and Chamois Co. has contracted for more French-made sponges in the coming year.

Making Own Market: To sell this increased output, the sponge makers are courting the householder. Synthetics are urged on the housewife for every job that formerly required a rag, for scrubbing everything from dishes to walls. Car washing, the area Du Pont pointed for when it introduced the synthetics back in '36, is still stressed, but it has been sales of sponge floor mops, and colorful bathtub toys, and the like which have vaulted sales to the multi-million dollar mark.

Whys of Soaring Sales: Reasons the synthetics have climbed into their present position are several:

- The synthetics sell for about 1/3 the price of the natural ones.
- They are uniform in size and quality.
- Synthetics can be made in any convenient size and shape.
- They soak up a third more water – nearly 20 times their own weight.
- They are readily available at all times.
- Synthetics are less affected by most alkalies and acids.

Stack these advantages up against the two big disadvantages: the lesser resiliency of the synthetics and their slower (about half) soak-up rate, and you can see why the naturals are being pushed into the back seat.

But don't count the sea sponges out yet. All that can be pulled off the ocean floor find ready market, a market estimated at around $3 million.

Foundling from France: The cellulose synthetic sponge was introduced in France about 1932, although pat-

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PIPE and FUME DUCTS

2" to 12" for immediate delivery

PLA-TANK is the answer to many problems involving drains or other transfers of corrosive liquids or gases. Made of Fiberglas, impregnated and bonded with polyester resin, it is molded into strong, rigid units — units that will be resistant at temperatures from — 60° F. to + 280° F. In the case of pipe, joints are quickly made right on the job with PLA-TANK fittings and "paint brush welds." PLA-TANK is competitive with other corrosion-resistant materials, its long life has been demonstrated, and you can get it NOW.

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There are many other uses for PLA-TANK in the chemical processing field. We are prepared to handle custom fabricating of this amazing new material to meet your specific corrosion needs.

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Write for latest literature on PLA-TANK or let us estimate on a sample unit for you to test in your own plant.

THE Chemical CORPORATION

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THEY CAST THEIR SPELL WITH SPARKLE, SPEED .... AND *SMELL!*

Laboratory magic plus sales magic . . . *that* combination is creating BIG business today for the makers of all sorts of waxes and polishes for practical, every-day use. Spread 'em on . . . wipe 'em off—*that's* their appeal; they're so easy, fast and pleasant to use. One characteristic of all the most successful of these modern, highly efficient polishes and waxes is their *agreeable* odor—a characteristic we can assure your product if you'll let our odor experts help you with its development. Such service is confidential and incurs no obligation—unless we satisfy YOU.

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☐ RUBBER ☐ LATEX ☐ LEATHER
☐ PAINTS or LACQUER ☐ TEXTILES
☐ ROOM or ☐ HOSPITAL DEODORANTS
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Established 1871
PORT AUTHORITY BUILDING
76 NINTH AVENUE, NEW YORK 11, N.Y.

ents had been filed on processes for them long before. Du Pont imported a few for test marketing, paying the 60% ad valorem tax (now 45%) and selling them below cost on trial.

Versatile Viscose: Cellulose yarn is one of the new, wide-selling forms of the spongy synthetic. It's produced as a continuous length of ball warp with a cotton yarn center. Some 40-odd makers fashion mops, car-washing mits, and mats for dishwashing out of it.

Du Pont has an exclusive here now, and one company executive optimistically feels that "it's got the same possibilities that block sponges had back in 1937." Production got under way in '48, and sales have doubled since.

Adding color to the sponges has added to their sales. O-Cel-O was the first to do this with the cellulose sponges back in 1948. Now others, including the importers, offer colored sponges too.

Convinced of their salability, Du Pont launched the Buffalo plant for making the sponges in 1936. Since then, domestic makers have usually been able to meet the demand, although in the few years just after the war, it was definitely a sellers' market. Du Pont has exported some, although the major foreign markets are supplied there; Novacell (Paris) is the big European producer, even sells some in America.

Production Precis: Modified from the original French process, sponge manufacture proceeds along these lines: Wood pulp, basic raw material, is converted into ordinary viscose with alkali and carbon bisulfide. Vegetable fibers are mixed in for strength, along with various salt crystals.

The doughy mix is placed in large steel molds for cooking. Processes vary here. Du Pont, with readily available electricity at its Yerkes works, (and probably able to tap TVA at the Columbia plant) coagulates the mix by electrical heating. O-Cel-O, and most of the others, cook in hot salt baths.

The cooking hardens the cellulose structure; and the pores, size determined by fibers and crystal dimension, are formed as the mixed crystals dissolve and drain from the molds.

The sponge block is removed, and chemical cleaning changes the color from greenish to a bright yellow. Drying results in a pale yellow chunk, which is trimmed to size and shipped. The process now takes about 24 hours; it took five days back in 1946.

Down the Road a Piece: Du Pont and O-Cel-O, top two in the synthetic business, seesaw for sales leadership and production. The new Tennessee plant should give the advantage to Du Pont, but O-Cel-O, down the road from Du Pont in Buffalo, hopes to even things with its new addition.

Du Pont had the domestic cellulose sponge field almost to itself at the start. To capitalize on the heavy postwar demand in 1946, O-Cel-O was formed by three ex-Du Pont men, Jack Bitzer, Chester Hardt, and Gerard Murray, who wanted their own company. Investing $500 each, added to $51,500 from stock sales, they have built O-Cel-O to assets of $1.5 million in five years.

The vigorous campaign that lifted O-Cel-O into sales equality included shortening the process time, going after the consumer-regarded Good Housekeeping seal (Du Pont and Ivalon have it too, now), and introducing pastel shades.

O-Cel-O's decision to wrap in cellophane forced Du Pont to put its back in the wrap too, after the company had originally given it up. On the packing angle, Ivalon uses a Pliofilm bag, sells the sponge moist and soft. American Sponge and Chamois is testing that too—figures the soft sponge is more attractive to the housewife than the hard block, although it does not make as neat a product.

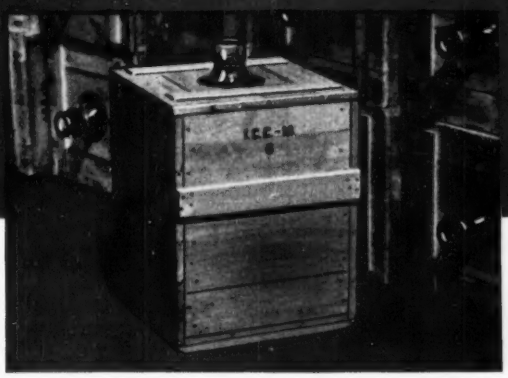
CELLULOSE YARN MIT: Spaghetti-sponge for car scrubbing.

Bright Future: The synthetic sponge business got off to a slow start. But in 1938, a blight swept the sponge beds near Tarpon Springs, Fla., and that gave the synthetics a boost. Then the war blocked out Mediterranean supplies of naturals, opening a new hole for fast moving cellulose sops. Military needs during the war un-

A CONTINUED STORY BY ONE OF AMERICA'S OLDEST GLASS MANUFACTURERS

The Case of the Acid Carboy...

by GAYNER



CHAPTER ONE

This is not a mystery story. It's a series of FACTS about glass carboys — particularly, Gayner Glass Carboys. Of course, nearly every large chemical manufacturer in the country knows them well, because they started to use Gayner glass carboys back in 1895. They've been using them — for acids and other corrosive chemicals — ever since.

For almost 80 years, Gayner has produced fine glass containers. From the days of the old balloon-shaped acid carboys, we've kept pace with the exacting demands of the chemical industries for tough, durable, easy-to-handle glass carboys that get there safely, time after time, and stay on the job indefinitely. Rigid quality control, accurate annealing, maximum strength and uniformity without excess weight — are just a few of the reasons why Gayner Glass Carboys are today's "preferred package"— 13-gallon MCA Standard — for safe shipment and storage of acids, corrosive liquids and other critical, hard-to-handle chemicals.

Write today for illustrated brochure, prices and delivery details.

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1. Gayner glass is fully annealed. Maximum shock-resistance for safety.
2. Uniform, heavy walls. Strong, durable, greatest serviceability.
3. Easy to clean because it's GLASS. Re-usable for same or *different* liquids.
4. Resistant to chemical attack. No pores or pits to absorb water or chemicals.
5. Bottle held firmly by cork wedges. All corners of box securely cushioned.
6. Light in weight—low return costs.
7. Box is clear, sturdy, seasoned white pine. Bottle easy to install; convenient to handle and store.
8. Approved by Bureau of Explosives. MCA Standard 13-gallon carboy bottles.

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FOUNDED IN 1874

MANUFACTURERS OF FINE GLASS CONTAINERS FOR CHEMICALS, DRUGS, OILS, WINES, JUICES...

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As one of the largest producers of Sulfuric Acid for well over a quarter of a century, naturally our initial interest in organic chemicals is centered around ORGANIC SULFONIC ACIDS and their derivatives. Intensive research has developed a new approach to this basic reaction and a new plant employing a revolutionary Sulfonation process is under construction.

Pilot plant quantities of many unusual Sulfonates are now available. We are particularly interested in tough or unusual sulfonation reactions.

Call, wire or write us. Perhaps we can solve your problems.

ORGANIC CHEMICALS DIVISION

TENNESSEE TC CORPORATION

TENNESSEE CORPORATION

619 Grant Building, Atlanta, Georgia

covered many new applications for the sponges.

In industrial applications, synthetics carry abrasives, absorb sounds, filter water solvents, and oils; serve as gaskets, liners, mounts. They're used in packing, to seal and to dampen vibration. Military uses are for self-sealing fuel tanks, life boat bailers, and the ordinary cleaning and wiping applications.

Though production now can meet the present demand, an all-out war, with shortages of critical raw materials, would overtax facilities. But peace or war, synthetic sponge makers see no limit on the uses for their sponges, or a saturation of the market.

•

Abbott in L.A.: The Los Angeles branch of Abbott Laboratories will move to a now-building, 24,800 sq. ft. structure late this year.

•

New Lube: Knapp Mills, Inc. (Long Island City, N.Y.) has developed a new heavy duty lubricant, Lead-Lube. It is made by a special process in which powdered lead is suspended in grease.

•

Chemotherapy: Preliminary study by the USDA's Plant Industry Station (Beltsville, Md.) indicates that antibiotics may prove of value in control of plant diseases.

•

Poster Paint: A high-gloss, quick-drying paint for posters and display signs has been produced by the Graphic Arts and Sign Finishing Division of the Glidden Co. (Cleveland). Force Dry Overpaint, said to dry in two minutes under infra-red lamps, is available in 1, 5, or 55 gallon containers, and in quart samples.

•

Waterproofing: Latest developments in the Army's Quartermaster Corp's work on water repellent treatments for textiles are available in a 186-page book just issued by the Dept. of Commerce. Information is included on basic techniques for measuring water resistance, designing fabrics for water resistance, water-repellent treatments, etc.

"Quartermaster Research on Water Resistant Textiles," PB 105 661, sells for $5, obtainable Office of Technical Services, U.S. Dept. of Commerce, Washington 25, D.C.

•

Abattoir Insecticide: The Meat Inspection Division of the Bureau of Animal Industry of the USDA has approved the use of the insecticide synergist, sulfoxide, in meat packing establishments. Sulfoxide is made and

Hooker Chemical Guide
(ONE OF A SERIES)

Use this handy reference to save time in selecting high-quality chemicals.

HOOKER CHLOROBENZENES

MONOCHLOROBENZENE

Synonym: Phenyl Chloride
Formula: C_6H_5Cl
Appearance: clear, colorless liquid

TYPICAL PROPERTIES

Molecular Weight	112.5
Freezing Point	−44°C
Distillation Range	131.2° to 132.2°C
Specific Gravity, 15.5°/15.5°C	1.114

USES

INSECTICIDAL INTERMEDIATE: DDT and other insecticides.
DYESTUFF INTERMEDIATE: sulfur black and brown dyes.
CHEMICAL INTERMEDIATE: organic synthesis.
SOLVENT: paints, varnishes, lacquers, paint removers; general use.
HEAT TRANSFER FLUID: suggested for condensing vapor systems, such as glass enameled vessel jackets, which cannot stand high steam pressures.

ORTHODICHLOROBENZENE

Synonym: 1, 2-Dichlorobenzene
Formula: $C_6H_4Cl_2$
Appearance: clear, colorless liquid

TYPICAL PROPERTIES

Molecular Weight	147.0
Freezing Point	−18° to −22°C
Distillation Range	4° incl. 179.5°C
Specific Gravity, 15.5°/15.5°C	1.310

USES

INSECTICIDE: termites, powder post beetles, wood borers, midges, flies, roaches, bed bugs, etc.
SOLVENT: gums, resins, tars, rubber, greases, oils, fats, waxes. Readily emulsified.
DEGREASING AGENT: metals, leather, hides, wool.
INTERMEDIATE: organic chemicals, dyestuff intermediates.
IN COMPOUNDED SPECIALTIES: metal cleaners, polishes, paint and varnish removers, etc.
HEAT TRANSFER FLUID: suggested for condensing vapor systems in temperature range 180° to 200°C.

PARADI®

(Hooker Paradichlorobenzene)
Synonym: 1, 4-Dichlorobenzene
Formula: $C_6H_4Cl_2$
Appearance: white crystals
7 SIZES—Pea No. 1, Pea No. 2, Rice No. 1, Rice No. 2, Rice No. 3, Granulated, Powdered.

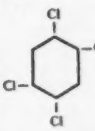
TYPICAL PROPERTIES

Molecular Weight	147.0
Melting Point	53°C
Boiling Point	173°C
Flash Point	73°C

USES

INSECTICIDE—REPELLENT: peach tree borers, black peach aphids, tobacco blue mold, clothes moths, carpet beetles, fish moths, garden centipedes.
HERBICIDE: used in cranberry bogs.
DEODORANT: in sanitary specialties, disinfectants.
INTERMEDIATE: organic synthesis; many dyestuffs including sulfur, azo, anthraquinone.

1, 2, 4, 5-TETRACHLOROBENZENE



Formula: $C_6H_2Cl_4$
Appearance: white flakes

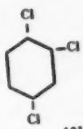
TYPICAL PROPERTIES

Molecular Weight	215.9
Chlorine Content	65.7%
Melting Range	137.5° to 140°C
Distillation Range	240° to 246°C

USES

INTERMEDIATE: 2, 4, 5-trichlorophenol; 2, 4, 5-trichlorophenoxyacetic acid; azo dyes.
INSECTICIDE: slightly active; suggested for dusting powder formulations.
IMPREGNANT: for fire and moisture resistance, electrical insulation; temporary protection in packaging.

TRICHLOROBENZENE, Tech.



Formula: $C_6H_3Cl_3$
Appearance: clear, almost colorless liquid

TYPICAL PROPERTIES

Molecular Weight	181.5
Freezing Point	10°C
Distillation Range	205° to 235°C
Specific Gravity, 15.5°/15.5°C	1.465

USES

INSECTICIDE: soil poison for termites.
SOLVENT: fats, oils, waxes, resins; crystallization solvent.
HEAT TRANSFER MEDIUM: condensing vapor systems, 210° to 300°C.
DIELECTRIC FLUID: transformers.
INTERMEDIATE: dye intermediates, other organic chemicals.

• *For detailed information* on items listed, drop us a note on your letterhead. Address your request to HOOKER ELECTROCHEMICAL COMPANY, 13 Forty-Seventh St., Niagara Falls, N. Y.

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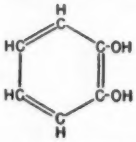
HOOKER CHEMICALS

2-124

From the Salt of the Earth

HAVE YOU TRIED Koppers Catechol?



In Bactericides · Antioxidants
Photography · Perfumery · Medicinals
Leather · Electroplating

And Catechol enters into a host of other chemical reactions:

Hydrogenation	**Alkylation**	**Etherification**
Halogenation	**Oxidation**	**Ammonolysis**
Nitration	**Acylation**	**Condensation**
Sulfonation	**Esterification**	**Coupling**

● Koppers Chemical Division produces this important chemical in two commercial grades:

Catechol C.P.—with a minimum purity of 99.0%, in the form of crystalline granules.

Catechol Resublimed—with a minimum purity of 99.6%, in the form of glistening white needles.

Catechol C.P. is useful in chemical manufacturing and processing, while Catechol Resublimed has medicinal and photographic applications.

The ready availability of this organic chemical recommends its further study in your laboratories. For more information, write for your copy of Koppers Bulletin C-9-127 which gives full details on properties, uses and reactions of Catechol.

KOPPERS

KOPPERS COMPANY, INC.
Chemical Division · Pittsburgh 19, Pa.

SPECIALTIES. . . .

sold by S. B. Penick, & Co. (New York).

●

For Peaches: Du Pont's EPN insecticide and miticide (*CW, April 5*) is now being recommended for peach insect control in 14 states. It is not recommended for the home gardener.

●

Latex in L.A.: Just completed in Los Angeles is a new latex and plastic materials plant of the Naugatuck Division of U.S. Rubber. Plant will house sales, laboratories, and facilities for compounding and warehousing Naugatuck products.

●

New Primer: Glidden Co. has developed a new alkali resisting primer called Nu-Pon for use in laundry appliance coating.

●

Fuller Incorporates: H. B. Fuller Co., Atlanta, Ga., adhesives maker, has incorporated to give expanded service in the Southeastern area which it serves.

●

Formula Switch: Hood Chemical Co. (Philadelphia) will soon be selling in 30 Eastern markets a new liquid starch formulation under Hood's old trade name E-Z starch.

●

Anti-carbon Fluid: Ox'o-Fluid, a new additive for gasoline and fuel oil developed by Ox'o Gas Co., Palisades Park, N.J., is now being sold by Thrifty Products Co. (Brooklyn). Compound is devised to remove carbon from combustion chambers, increase fuel efficiency.

●

Aluminum Tinting: A new compound claimed to give improved coloring of aluminum surfaces has been marketed by Alcoa. Called Aluminum Tinting Paste #222, it is designed primarily for automotive finishes.

●

Fresh Breeze: Lever Brothers is starting anew to plug Breeze, its household synthetic detergent. Once a light-duty detergent, it has been reformulated as an all-purpose type, has a new package which includes premiums in larger sizes, and is being marketed in the Detroit and Minneapolis areas at the moment.

●

Glamorous Squabble: Hosid Products, Inc., Syracuse, N.Y. has filed suit in New York's Supreme Court against Masbach, Inc., New York State distributor of Glamorene (*CW, Feb. 23*). Hosid, maker of a rug and upholstery cleaner called Glamur, is trying to halt sale of Glamorene in New York in this test case, claiming prior usage of the Glamur word in its trade name.

"Dad, how do they get things like *medicine* and *tires* from COAL?"

No wonder Junior's science lesson sets him to dreaming—and to dreaming up questions like that for dad! For the chapter on modern chemistry is more exciting than the story of Aladdin's Lamp. Indeed, the wondrous lamp never provided as many things for good living as the valuable chemicals derived from *coal.*

Today, these important coal chemicals—such as benzene, pyridine, phenol, and phthalic anhydride—are the basic "building block" chemicals from which industry creates your plastics, dyes, medicines, synthetic fibers and dozens of other products which help maintain America's industrial supremacy.

More and more manufacturers are calling upon Pittsburgh Coke & Chemical for their coal chemicals. For, as a *basic* and *integrated* producer, we control every step of their production, from coal to finished chemicals. The result? Assured maximum quality of product and a dependable continuity of supply.

When you see the Pittsburgh Coke & Chemical trademark, remember that it represents a growing family of useful basic chemicals and related products which serve the nation's industry and agriculture.

Alkyl methyl pyridinium chloride
Benzene meta, para-Cresol ortho-Cresol
Naphthalene Phenol Phthalic Anhydride
alpha-Picoline beta, gamma-Picoline
Pyridine Sodium Cyanide
Toluene Xylene Xylenol

WBD 4128

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In the laboratory — in the plant — BECKMAN pH CONTROL can be used in many valuable ways!

THE BECKMAN MODEL H-2 pH METER is one of a complete range of Beckman pH Meters available for every type of application*. The H-2 is particularly recommended for applications where high accuracy and simple operation—combined with the convenience and low cost of 115-v. AC operation—are desired.

It provides instant and direct pH readings, and a simple, built-in dial permits quick, convenient temperature compensation over the entire range of 0° to 100°C (32° to 212° F.). High reading accuracy is assured by wide-spread dual range scale that reads from 0 to 8 pH or from 6 to 14 pH at the turn of a switch. Same switch also provides instant millivolt readings from 0 to ±800 mv and from ±600 to ±1400 mv for titrations and oxidation-reduction measurements.

Built-in electrode support and compact case design save valuable space and permit easy portability to various plant locations.

Particularly important is the wide range of factory-sealed, maintenance-free Beckman Glass Electrodes available for use with this instrument . . . electrodes that are virtually unbreakable . . . that cover extreme temperature ranges from below freezing to above boiling . . . that have an unprecedented pH range with negligible errors . . . that are abrasion-resistant and chemically durable to a degree never before thought possible in glass electrodes.

In virtually all types of chemical laboratories—both in industry and science—Beckman pH instruments are playing an increasingly important role in simplifying operations, reducing processing costs, increasing uniformity and quality of the finished product.

Most laboratories are already familiar with the unique advantages of Beckman electrometric methods in making pH measurements . . . the far greater accuracy, speed and simplicity of making pH determinations without human errors in color judgment and free from the other inaccuracies and inconveniences of colorimetric methods. But many laboratories are not fully aware of the other useful ways Beckman pH Meters can be used in modern laboratory and industrial chemistry.

For example, Beckman pH instruments can also be used to obtain greater accuracy and convenience in various types of titrations and end-point determinations . . . they can be used for making a wide range of millivolt readings . . . and a varied selection of special-purpose Beckman electrodes permits many other types of electrochemical measurements to be made, quickly and accurately.

In fact, the great variety of Beckman Glass Electrodes—the most rugged, most advanced and most diversified in the industry—permits the utmost versatility in the application of Beckman pH Meters. These electrodes cover the complete temperature range from below freezing to above boiling, can be used at even high pH values with negligible sodium errors, are factory sealed (require no maintenance) and are unusually resistant to alkalis, acids and rough treatment.

Among the many Beckman pH Meters available, the Model H-2 Meter illustrated above is most popular for general use. A few of its many unique features are outlined at left. For further details on this and other Beckman instruments see your authorized Beckman dealer, or write direct.

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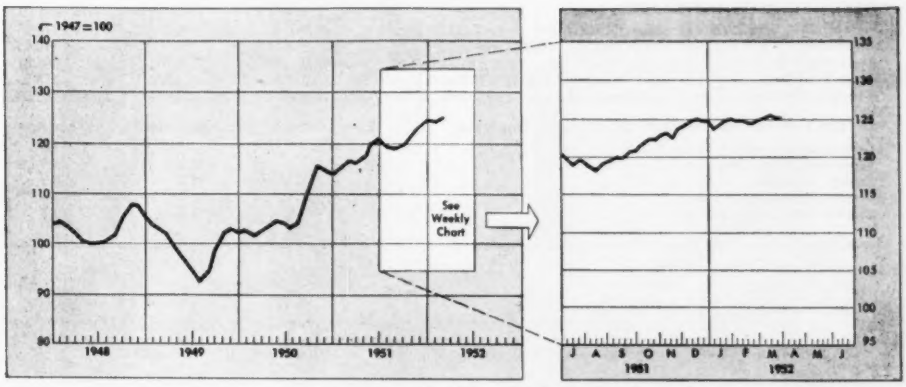
Send for free booklet "What Every Executive Should Know About pH." It's helpful and informative.

*In addition to the H-2 Meter, other Beckman pH equipment includes completely automatic pH indication and control instruments for large-scale process applications . . . battery-operated models for complete portability in plant and field use . . . and a laboratory type instrument that features maximum versatility and accuracy for research and laboratory applications

Beckman Instruments: pH Meters and Electrodes — Spectrophotometers — Radioactivity Meters — Special Instruments

MARKETS . . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries

MARKET LETTER

Timelier coverage of price trends in gum naval stores is now being provided by the Production and Marketing Administration of USDA. An agency branch at Savannah will compile daily and weekly reports based on sales by 22 of the 24 principal firms in this business.

By this move, PMA hopes to encourage competitive pricing, reduce the risks for both buyers and sellers.

Here's a sign that the drum supply for chemical shipments is on the mend. Effective this month, Shell Chemical Corp. is no longer requiring a $10 deposit on drums.

But just to help keep drums moving, Shell will reimburse customers with $1.75 (ceiling price) for each drum returned, freight collect, to a company-specified destination.

Two ways of making more superphosphate with less sulfuric acid are holding the attention of U.S. producers. One is the TVA-pilot planted process based on mixed nitric-sulfuric. The second route, using alkali instead of acid, is in operation in a spate of foreign countries.

Unless acid-saving processes like these can be developed, U.S. producers see little chance of meeting the 1955 goal for superphosphate, which is 75% higher than estimated output this year.

Shortages of carbon tetrachloride won't end soon for two reasons: 1. There is not enough carbon bisulfide to make all that is needed; 2. Demand for Freon refrigerants and propellants—which take some 40% of the carbon tet now made—is heavy. And other uses, including metal degreasing (20%) and grain fumigants and insecticides (15%), are up.

Uniform dollars-and-cents ceilings are now in effect for five dioctyl phthalate plasticizers. These account for about 75% of the output in this group. The rest are still subject to CPR-22 pricing.

In many flexible plastics, producers' optimism is back and output is climbing. Manufacturing has been down to about 75% of capacity because of inventory liquidation by customers. But now cellophane makers—to cite one example—are building up stocks to meet rising demand.

MARKET LETTER

WEEKLY BUSINESS INDICATORS			
CHEMICAL WEEK Output Index (1947=100)	124.8	125.0	118.0
Bituminous Coal Production (Daily Average, 1000 Tons)	1,635.0	1,593.0	1,710.0
Steel Ingot Production (Thousand Tons)	2,110.0	2,120.0	2,045.0
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	236.7	232.9	218.5
Chemical Process Industries Construction Awards (Eng. News-Record)	$42,771,000	$38,602,000	$20,465,000

MONTHLY BUSINESS INDICATORS—Hours Employed	Latest Month	Preceding Month	Year Ago
Chemicals and Allied Products	41.0	41.6	41.8
Paper and Allied Products	42.6	42.7	43.4
Rubber Products	40.7	41.1	38.9
Petroleum and Coal Products	40.7	40.7	40.6
Leather and Leather Products	38.9	38.3	39.2

Polyethylene supply is just half the demand. That portends little easing of controls for at least three months despite new production.

Use restrictions on tetraethyl lead are off because of the improvement in lead supplies, and because the two producers—Ethyl Corp. and Du Pont—have set aside a 55 million pound-reserve.

But this boon to refiners could be short-lived. They must still send reports of TEL use to the Petroleum Administration; and PAD has just notified them of new and higher Air Force needs for aviation gasoline.

Fertilizer buyers in the Southeast will be scurrying to buy more synthetic nitrogen unless Chilean nitrate—now strike-bound—starts coming in again soon. If enough synthetic nitrate isn't obtainable, county agents advise farmers to buy high-nitrogen mixed fertilizer.

Long-term contract buyers of four chemical products will be paying contract prices rather than CPR ceilings. The items are: cracking catalysts, ethyl chloride, and synthetic ethyl and isopropyl alcohols. Contracts must have been signed prior to Jan. 26, 1951, and a copy must be submitted to OPS for approval.

At least one phenol producer is keeping—not using—his certificate of necessity for new production. Reason: Consumer phenolic sales are lagging though industrial and military demand is active. But most producers count on new markets opening up to take care of rising output. Best hope: the whopping potential in foundry molds.

Some hard-to-get metals are turning easier due to stepped-up domestic output, and to more abundant imports following collapse in foreign demand. Imported zinc, for instance, is now selling for 19½¢ a pound at Gulf ports, while the domestic material sells for the same price in New York.

Subsidies for critical mineral exploration are paying off for the Defense Minerals Administration. Latest finds: mica in North Carolina, manganese in Arkansas, and this week, tungsten in California.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending April 7, 1952

	Change	New Price		Change	New Price
UP					
Copra, ton, Pacific ports	$5.00	$120.00		$	$
DOWN					
Carnauba Wax, No. 1 yel.	.020	1.20	Tricresyl phosphate, tank cars del'd.	.005	.17
Linseed Oil, raw, tank wagon	.005	.17			

All prices per pound unless quantity is stated

The right package can help you SEW UP SALES

You can rely on Continental's "F" style cans to add sales appeal to any chemical product. They're sturdy, handy to use, and our master lithographers make them things of beauty. Available in practically every size you could want: ½-pint, pint, quart, ½-gallon and gallon. To sew up more sales, ask us for the full story on Continental "F" style cans!

Continental also makes steel containers that are tops for shipping chemicals in bulk.

CONTAINER	SUGGESTED USE
Open Head Pails	Adhesives
Closed Head Drums	Anti-Freeze
Utility Cans	Insecticides
50 and 65 Pound Flaring pails	Soap Powder
Small Flaring pails	Dry Chemicals

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Shoes courtesy Converse Rubber Company, Malden, Massachusetts.

Soles grip better, wear longer when YOU use Wyandotte PURECAL T

Formulate with PURECAL* T (using higher loadings than with carbon blacks). Get these desirable properties:

Kids give shoes an awful beating. "Cowboys-and-Indians" can grind shoes on hard concrete, test them on slippery roofs, tear them on sharp rocks.

The Problem: To build more safety, tear-resistance, and wear into rubber soles.

The Solution: Reformulation, using Wyandotte Purecal T, an ultrafine reinforcing filler. Same procedure was followed as processing carbon blacks. Purecal T is a *white carbon black* . . . with respect to particle size.

The Results: Soles with extreme flexibility; good grip on slippery surfaces; unusually long life.

For You: If you use a GR-S; some other synthetic elastomer with poor pure-gum properties . . . *you* can enjoy these improved properties, PLUS these production advantages:

Purecal T gives you building tack in an all GR-S stock . . . it promotes knitting.

Purecal T lessens "nerve," makes smoother stocks, extends GR-S.

Purecal T has high abrasion resistance for a calcium carbonate . . . approaches that of the best clays.

Purecal T is snow-white . . . non-discoloring.

Purecal T and carbon blacks in combination improve quality, lower hysteresis in GR-S passenger-tire stock, and impart sufficient building tack for tying in over beads without cementing. Purecals can help you! *Call Wyandotte 1700* or write direct to *Wyandotte Chemicals Corporation, Wyandotte, Michigan.*

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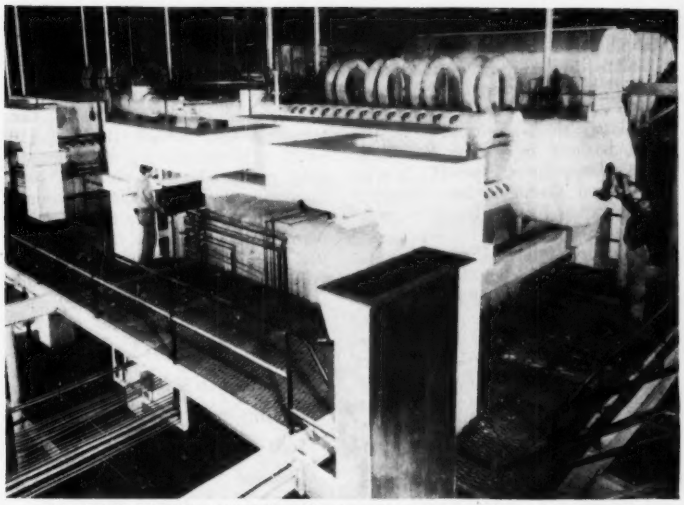
Wyandotte CHEMICALS



SULFITE LIQUOR PROCESSING: An early start may bring a later reward.

Pulpers Go Chemical

Though shortages of sulfur and chlorine are easing, pulp producers face other problems. Instance: growing anti-pollution campaigns.

New markets are opening up for chemical sales to pulpers. Latest: groundwood bleach. Promising potential: ammonia for pulping.

Larger number of pulpers is trying to expand outlets for dissolving pulp and pulping liquor byproducts.

Though they have long been among the major buyers of heavy chemicals, most pulpers haven't paid much heed to them until now. As they saw it, their business was primarily making pulp; they realized the importance of chemicals to their industry, but couldn't get excited about them.

Now that attitude is changing. One factor has been the continued shortage of sulfur and chlorine that has played hob with the 5 million ton-a-year expansion program.

Pulpers' problems, moreover, are mounting, and chemicals and chemical technology look like the best means of coping with them. One of the more immediate worries is the decline in the dissolving pulp business, reflecting the 10-20% drop in demand for rayon, cellulose acetate, and nitrocellulose. Another is the mounting anti-pollution campaigns many states are pushing. Almost all pulpers, especially those using the sulfite process, recognize that they will eventually have to do something to abate this pressure.

But in trying to cope with the problem, some enterprising pulpers are taking a second look to see whether this is a blessing in disguise. Example: Two more companies will join Marathon this year in making vanillin from lignin, hoping soon to bring the vanillin price down sufficiently to expand production well beyond the now estimated 1.5 million pounds-a-year level.

Kraft pulpers, using southern pine, are finding new markets for by-product tall oil by further purification into resin acids and fatty acids. Arizona Chemical has recently succeeded in producing from tall oil pitch a hard rosin with properties comparable, in many respects, to gum rosin.

Timber Lines: Pulpers are concerned about raw materials too: Much timberland is being cut down faster than reforestation can replenish it. This is particularly true of southern pine, mainstay of kraft pulp operations. Today southern timber is only about half pine and half hardwood, and the pine-to-hardwood ratio has been steadily falling.

The increasing use of hardwoods poses a problem to sulfite pulpers, who are runnersup in producing pulp. Semi-chemical pulping threatens to make inroads on sulfite operations,

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since the latter is not economical or feasible for most hardwoods.

Sulfite Fight: But overhadowing these trends in urgency is discovering means to dispose of sulfite liquor. Unfortunately, the liquor can't be evaporated because of scaling problems. Some sulfite pulpers, especially in Wisconsin and Michigan, have found a ready market for the liquor in dust-laying on county roads.

For most of the industry, two developments in the Pacific Northwest seem to offer the most promise thus far, if the liquor has to be processed before disposal. One is Weyerhauser Timber's using a magnesium sulfite process in one of its mills, then evaporating and burning the residue. The other is an operation based on ammonium sulfite. Crown-Zellerbach has such a pilot plant, is considering expanding it. Added advantage: The sulfur value can be recovered.

Valued Customer: Not only the pulpers, but the heavy chemical producers too are vitally interested in the results of these process innovations. The former's concern is obvious. The latter group, already selling $10 worth of chemicals for every ton of pulp produced, sees potential new tonnage business. Bleaching of groundwood is moving up fast with more peroxide now available. This estimate just completed by the American Pulp and Paper Assn. points up the giant chemical needs of the industry each year, shows why chemical suppliers are so interested:

Salt Cake	800	thousand	tons
Caustic	160	"	"
Soda Ash	240	"	"
Chlorine	400	"	"
Sulfur	400	"	"

Government Needs

Bid Closing	Invitation No.	Quantity	Item
San Francisco District Corps of Engineers, 180 New Montgomery St., San Francisco, Calif.			
Apr. 16	04-203-52/898	1000 lbs	Ammonium molybdate (reagent gr) crystal ACS 1 lb btl.
			Barium chloride (reagent gr) ACS crystal 1 lb btl
			Calcium bromide (reagent gr) powder 1 lb btl
		2700 btl	Methyl orange indicator powder ACS ⅛ lb btl
		900 lbs	Potassium chromate (reagent gr) ACS crystals 1 lb btl
		1000 lbs	Sodium chloride (reagent gr) ACS crystals 1 lb btl
			Sodium citrate (reagent) crystals 1 lb btl
		2650 lbs	Sodium nitrate (reagent gr) ACS granular 5 lb btl
		2500 btl	Phenolphthalein-indicator solution-apha ½% neutral alcoholic 4 oz btl
Commanding General, New York Quartermaster Procurement Agency, 111 East 16th Street, New York, N. Y.			
Apr. 14	52-1384B	7500 lbs	Glue, urea, resin type powder 50 lb drum, spec. C-G-496
General Services Administration, 1114 Commerce Street, Dallas, Texas.			
Apr. 17	FW-21666	2700 lbs	Powder, scouring compound P-P-591A and amendment 1
		30000 lbs	Soap, chip, laundry, P-S-566B
		27403 lbs	Soap, grit P-S-571A and amend 4
		1236 gal	Soap, liquid, toilet, P-S-618A
Chief Procurement Branch, Civil Aeronautics Administration, 50 7th St. NE., Atlanta 5, Georgia.			
Apr. 15	22-249	300 qt	Ready mixed vehicle aluminum varnish paint
Chief, Procurement Section, National Bureau of Standards, Connecticut Ave. & Van Ness St., N.W., Wash. 25, D. C.			
Apr. 15	B-1-1765-52	20000 lbs	Soda ash

Government Awards

Item	Amount	Dollar Value	Supplier	Location
Armed Services Medical Procurement Agency, 84 Sands Street, Brooklyn 1, New York.				
Ether for anesthesia, inflammable	400000	80,000	Mallinckrodt Chem. Wks.	St. Louis, Mo.
New York Quartermaster Procurement Agency, 111 East 16th Street, New York 3, N. Y.				
Soap, ordinary issue	1000020 bars	44,780	Fels & Co.	Phila., Pa.
Soap, ordinary issue	1207440 bars	63,269	Colgate-Palmolive-Peet Co.	Jersey City, N.J.
Bar, insect, field	120000 ea	107,820	Wesco Mfg. Co.	Los Angeles, Calif.
Aviation Supply Office, 700 Robbins Avenue, Philadelphia 11, Pa.				
Paraformaldehyde flake technical grade	180000 lbs	26,964	Celanese Corp. of Amer.	N.Y.C.
General Services Administration, Business Service Center, Region 111, 7th & D Streets, S.W., Washington 25, D. C.				
Dihydrostreptomycin sulphate, crystalline	70000 1 gr	21,952	Merck & Company, Inc.	Rahway, N.J.
Procaine penicillin g. crystalline	200000	17,000		

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DRYMET is the most highly concentrated form of metasilicate available, because it contains no water of crystallization. Unique among alkalies—it combines strength with buffering action which prevents abrupt changes in pH. If you use alkali—investigate DRYMET.

A granular, free-flowing alkali with the following properties:

Formula..... Na_2SiO_3

Molecular Weight...122.06

Na_2O.....51%

pH in a 1% Solution..12.75

Quickly and completely soluble in water up to a concentration of 35% 1.0 lb. DRYMET equivalent to 1.6 lbs. sodium metasilicate pentahydrate.

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BOOKS.....

Problems in Physical Chemistry, by L. G. Sillen, P. W. Lange, and C. O. Gabrielson. Prentice-Hall, Inc., New York, N.Y.; xi+370 pp., $7.35.

English translation of the Swedish text presents a collection of 800 "practical" physical chemistry problems, along with introductory statements of theoretical principles before each of the various groups of problems.

Air Pollution, chairman, Louis C. McCabe. McGraw-Hill Book Co., Inc., New York, N.Y.; xiv+847 pp., $12.50.

Volume comprising papers presented by seven panels of experts (agriculture, analytical methods and properties, equipment, health, instrumentation, legislation, meteorology) at the United States Technical Conference on Air Pollution.

MEETINGS...

Plastic Coating & Film Assn., conf., Waldorf Astoria Hotel, N.Y., Apr. 16.

Northeast Oil Chemists' Soc., dinner meeting, Military Park Hotel, 16 Park Place, Newark, Apr. 17.

Amer. Zinc Inst., annual meeting, Statler Hotel, St. Louis, Apr. 21-22.

Assn. of Consulting Chemists & Chem. Engrs., general symposium, Belmont Plaza Hotel, N.Y., Apr. 22.

Amer. Ceramic Soc., annual meeting, Pittsburg, Apr. 27-May 1.

Amer. Oil Chemists' Soc., annual meeting, Shamrock Hotel, Houston, Apr. 28-30.

Amer. Drug Manuf. Assn., annual meeting, Homestead Hotel, Hot Springs, Va., Apr. 28-May 1.

Electrochemical Soc. Inc., spring meeting, Benjamin Franklin Hotel, Phila., May 4-8.

Natl. Air Pollution Symposium, Huntington Hotel, Pasadena, Calif., May 5-6.

Tech. Assn. of the Pulp & Paper Ind., Sherman Hotel, Chicago, May 5-8.

Scientific Apparatus Makers Assn., annual meeting, Edgewater Beach Hotel, Chicago, May 6-9.

Inst. of Paper Chemistry, annual executives' conf., Appleton, Wisc., May 15-16.

PICTURES IN THIS ISSUE:

Cover (bottom)—Intl. Paper Co.; p. 13—Lionel Crawford, McGraw-Hill Pub. Co.; p. 25—Merck & Co.; p. 51—Babcock & Wilcox.

Produce Hydrogen

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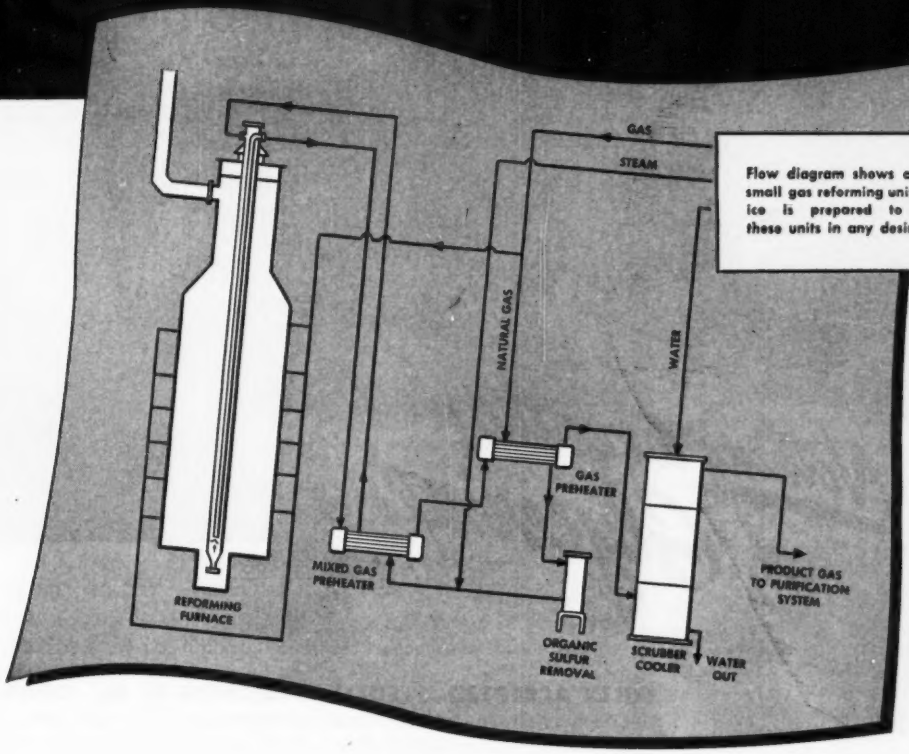

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BIG BUT LIGHT: Plastic bottle takes walk with 5-year-old.

Bounce 'Em, Roll 'Em . . . . . .

New polyethylene carboys are chief attraction for chemical company representatives at National Packaging Exposition.

Top features: lower shipping costs, greater safety in handling dangerous liquids. Looming: keener competition for glass, stainless, aluminum, plastic-lined containers.

Debut last week of the first one-piece, lightweight, unbreakable carboys stole the spotlight at Atlantic City's National Packaging Exposition, hinted at possible replacement of glass in all liquid shipping.

Blow-molded in one piece by Plax Corp. (Hartford, Conn.) the bottles are being made in 6½- and 13-gallon sizes, and are being used in round plywood-jacketed carboy containers developed by Greif Bros. Cooperage Corp. (Delaware, O.)

TEN TONS: Still intact.

AFTER: Bent but unbowed.

General Chemical Division, Allied Chemical & Dye Corp., already a convinced user of smaller polyethylene bottles, is first to start the new carboys rolling. The company is shipping its Baker & Adamson reagent grade hydrofluoric acid, and other fluorine chemicals, in the new container. Here, at least, glass offers little competition to the relatively inert polyethylene, which is unaffected by hydrofluoric acid.

Ship for Less: Plax estimates that the lightweight carboy will lower the transportation rate for shipments of bulk materials as much as 20%. Figures: The 13-gal. polyethylene-plywood carboy weighs 29 lbs., while the 13-gal. glass-wood carboy tips the scale at 70 lbs., both empty. On the shipping of empties this adds up to a top possible saving of 60%.

Considering the safety features of the new carboy, Plax points out that insurance rates for shipping dangerous or corrosive chemicals will undoubtedly be considerably lower. The corrosion-resistant feature of the bottles offers another dividend: They can be used over and over again for shipping most acids, corrosive materials.

Space saving, which means money saving, results from the smaller volume occupied by the new carboy. Depending on the method of stacking, up to twice as many plastic carboys as glass carboys fit into a normal boxcar.

Ship With Safety: Insurance rates aside, the safety features of the new carboy can be a boon to the chemical industry. With an unbreakable carboy, storage of dangerous liquids should be simpler, shipping much less bothersome, and chance of damage to other goods in the same shipment all but eliminated.

Polyethylene, of course, can be punctured, which poses a major problem. The companies cooperating on the development have attempted to get around this by making the plywood container strong enough to withstand about 10,000 lbs. of sidewall pressure, coating it inside with microcrystalline wax and outside with an acid-resistant plastic compound. The exposed neck, in particular a target for punctures, is protected with a hard dome-like screw cap of phenolic resin that goes over the polyethylene screw cap and inner liner.

Apparently the companies have

123—5

TARGET: Only bottles but this truck is in for a surprise.

. . . and Hit 'Em Again

overcome the puncture problem since the carboy has passed tests necessary for Bureau of Explosives recommendation for ICC approval for shipping hydrofluoric acid and electrolyte sulfuric acid. Full ICC approval is still being sought, but is expected soon.

Nevertheless, the unbreakable feature alone will be welcomed simply for the gain in handling around the plant. When acid bottles break, time is lost, men are needed to clean the area, and damage can be considerable to the affected area.

Added safety pluses: flexibile at subzero temperatures and high altitudes. If contents freeze, the bottle merely flexes and expands. If rapid changes of atmospheric pressure occur, the bottle again merely flexes.

Wide Application: Plax expects the carboy to have wide use in shipping liquids, particularly in the chemical industry. In Plax' eyes, among the biggest users will be shippers of industrial acids—including acetic, hydrofluoric, fluoboric, muriatic, sulfuric and formic. But the company claims that the bottles are equally suitable for caustic solutions, hydrogen peroxide, liquid pharmaceuticals, and photographic solutions.

Naturally Plax feels glass is in its death throes, but that is a rather large expectation, and glass container men are going to have a lot to say on the subject. Drawback: At present the plastic carboy costs about $25, glass $12-$14 depending on the cushioning used.

One hope: that the carboy will enable new, highly hazardous, products to be developed in the knowledge that they can be successfully packaged and shipped.

DIRECT HIT: Broken? None, of course.

SURVIVOR: Victim still healthy.

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Wanted—Plant Superintendent. Experienced in manufacture of liquid Zinc Chloride. Middle West location. State experience, references, salary desired. P-3840, Chemical Week.

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PW 3894 Chemical Week, 330 W. 42 St., N.Y. 36.

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Calenders, New Rubber Calenders, 6x12", Johnson Joints, 7½ HP motor, Complete. Eagle Industries, 108 Washington St., NYC.

Centrifugals, Bird Rubber Covered. First Machinery Corp., 157 Hudson St., N.Y. 13, N.Y.

Centrifuge; Sharples Super S/S. First Machinery Corp., 157 Hudson St., N. Y. 13.

Condensers, Coil, St. St., 40 sq. ft. Perry Equip., 1415 N. 6th St., Phila. 22, Pa.

Decanter, Sharples Super-D, s/s type 316, w/10 HP XP Motor. Chemical & Process Machinery Corp., 146 Grand St., New York 13, N.Y.

Disintegrator, Rietz 18 S/S; 30 H.P. First Machinery Corp., 157 Hudson St., N. Y. 13.

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Dryer; Double Drum; 28" x 5'. First Machinery Corp., 157 Hudson St., N. Y. 13.

Dryer, Vacuum Shelf, 44"x44" shelves, MD pumps, complete. Eagle Industries, 108 Washington St., NYC.

Dryer, Vacuum shelf, 20 shelves, 59 x 78", pump, condenser, 3. Consolidated Products, 18 Park Row, N.Y. 38.

Dryers, 2 Bfvk 32x90 dble. drum, SS accessories, complete. Eagle Industries, 108 Washington St., NYC.

Dryers, Stainless Drum 5'x10'. First Machinery Corp., 157 Hudson St., N.Y. 13, N.Y.

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Filter, Sweetland #12, 36 leaves. Perry Equipment Co., 1415 N. 6th St., Phila. 22, Pa.

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Filter Press, 30"x30", iron, Shriver and Johnson, 35-40 chambers, 6. Consolidated Products, 18 Park Row, N. Y. 38 BArclay 7-0600.

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Kettles, Dopp C.I. 200 to 650 gal. First Machinery Corp., 157 Hudson St., N.Y. 13.

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Tank, 5700 gal., S/S, Horiz., New. Perry Equip., 1415 N. 6th St., Phila. 22, Pa.

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Capryl Alcohol

12-p. booklet detailing the physical properties of capryl alcohol (octanol-2) and outlining various chemical reactions such as esterification, with both organic and inorganic acids, dehydration and dehydrogenation, etherification, etc. Rohm & Haas Co., Washington Sq., Philadelphia, Pa.

Synthetic Fibers

24-p. booklet entitled, "The Coloring of Post-War Synthetic Fibers," discusses the chemical and physical natures of acrylic and terephthalic acid fibers, as compared with that of nylon, and explains suitable dyeing techniques for the various fibers. National Aniline Div., 40 Rector St., New York, N.Y.

Insecticide Toxicant

8-p. booklet containing comparative testing data on "Thanite" as a toxicant in insecticide sprays and reviewing its uses in household sprays, livestock sprays and aerosols. Hercules Powder Co., Wilmington, Del.

Isobutyl Solvents

Booklet comparing properties of isobutyl acetate and isobutyl alcohol with those of their normal butyl homologues with respect to their use in lacquer formulations, concludes that these isobutyl solvents are, on the whole, interchangeable with the normal butyl solvents as utilized in furniture and automobile finishes, hot spray lacquers and specifications dopes. Tennessee Eastman Co., Kingsport, Tenn.

Reinforced Plastic Materials

4-p. folder describing the firm's polyester resins and fiber glass available as raw materials to the reinforced plastics industry. Libbey-Owens-Ford Glass Co., Plaskon Div., Toledo, Ohio.

Ethylenimine and Derivatives

Bulletin discussing the firm's series of ethylenimine derivatives and their uses in the preparation of such products as pharmaceuticals, lube oil additives, rubber vulcanizers and accelerators, and textile additives. Monomer-Polymer, Inc., 511 Lancaster St., Leominster, Mass.

Essential Oils

12-p. price list covering firm's line of essential oils, aromatic chemicals, floral absolutes, floral concretes, animal and resinoid fixatives, oleoresins, etc.—all of which are available in wholesale quantities, only. Fritzsche Bros., Inc., 76 Ninth Ave., New York, N.Y.

Biochemicals

44-p. price list reviewing firm's line of special products for biological, microbiological, bacteriological, biochemical and nutritional research. General Biochemicals, Inc., 677 Laboratory Park, Chagrin Falls, Ohio.

Equipment

Centrifugal Pumps

Two instruction booklets covering the installation, operation and repair of the firm's single-stage, single-suction and multi-stage centrifugal pumps. Included are numerous sectional drawings and reference tables. Allis-Chalmers Mfg. Co., 1147 S. 70th St., Milwaukee, Wisc.

Multi-Wall Sacks

4-p. folder detailing eight advantages of "Multi-Wall" sacks designed for industrial useage. Hudson Pulp & Paper Corp., 505 Park Ave., New York, N.Y.

Dust Collector

8-p. bulletin describing the main construction features, workings, and sizes and dimensions of cloth-bag dust collector for carbon black, cork, fine wood, graphite, pigments, lime, soap, metal oxides and similar dusts. Pangborn Corp., Hagerstown, Md.

Prefabricated Steel Structures

4-p. folder featuring "Unibuilt" pre-fabricated insulated steel structures, standard units for use in single or multiple series for the erection of industrial or utility buildings. Brookville Mfg. Co., Brookville, Pa.

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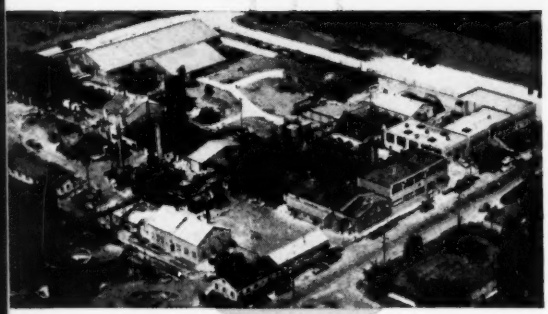

boosts production of vitally needed chemicals ...assures maximum customer service

BALANCED GROWTH

WITCO has expanded both its manufacturing and its laboratory facilities in Chicago. This growth in Chicago is part of Witco's balanced expansion across the country . . . a carefully integrated program designed to bring you a fuller supply of chemicals, produced under constant quality control, with a maximum of technical service.

OF PRODUCTION

Witco's Chicago plant now brings you increased production of metallic stearates, driers, vinyl stabilizers, fatty acid esters, and other much-needed chemicals.

AND SERVICE

Witco's Chicago laboratory offers you complete technical service facilities, backed by an extensive research program in the fields of rubber, plastics, paint and general chemical processing. Witco works constantly on such problems as new and improved products for specific applications in the chemical manufacturing industry, the development of existing products to meet specific customer needs, improvement of finished products to provide uniformity of output, and servicing of customers' requests for assistance in the use and application of Witco products.

FOR YOU

Witco's technical service staff will be glad to help you with your chemical problems. Write us today.

WITCO

WITCO CHEMICAL COMPANY

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